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An International Rubber Pool

THE recent suggestion of M. Louis Loucheur, French deputy and industrial magnate, that a conference be held under the auspices of the League of Nations for the organization of pools in the coal, iron, steel, electric power, and other industries is of much importance to the rubber industry. It is proposed that such pools should limit production to actual consumption and divide the selling territory between the pooled national groups. Consumers would be protected by their governments fixing prices in cooperation with the pools. In no other way, in the opinion of M. Loucheur, can the principal ills of modern industry be effectually cured, costs lowered, greater efficiency obtained, or the chief causes of war removed.

Four years ago, sensing the need of some such unity of action in India rubber, the Editor of *The India Rubber World* addressed to Secretary Herbert Hoover of the Department of Commerce this query:

"Is there economic unsoundness in or an insuperable barrier to a working arrangement between crude rubber producers (British, Dutch and Brazilian) and American, British, French, German, Japanese, and Dutch rubber manufacturers; this to be effected through the various rubber manufacturing and planting associations here and abroad? Would not a fairly-administered control of one key industry be followed by others? Would it act to stabilize industry?"

Secretary Hoover's reply was:

"I should not think there is any economic unsoundness to the type of cooperation that you suggest. However, we will be willing to get legal advice."

Raisers of raw rubber, then at a serious disadvantage and unable to effect cooperation with manufacturers, cut the Gordian knot by procuring the passage of the Stevenson Restriction Act; and the prospect of peace went glimmering. But even though the breach between producers of raw and finished material has steadily widened, the best friends of both interests have not despaired.

The trend toward consolidation—not in the old trust sense—is unmistakable. The national administration favors the merging of the railroads into five great groups, and even suggests that sanction be given importers to combine as exporters may now unite for more advantageous dealings abroad. International industrial pools would be a sane and logical extension of the principle of trade cooperation. Certain it is that American makers of rubber goods will find it increasingly difficult to develop overseas trade while weakening the market of foreigners for plantation raw material.

To effect such an industrial renaissance should be a task of no greater magnitude or complexity than that which confronted the Reparation Commission, which, through the Dawes plan, solved the colossal problem of recovering to the Allies and distributing among them the war debt of Germany. A commission duly authorized and capable of undertaking such an enterprise could ignore international politics, apportion production and distribution, offset the trend toward state socialism, furnish steady employment to labor, and afford security for investment. Thus might the League of Industries vie with the League of Nations as a potent promoter of enduring peace and prosperity.

Native Rubber Shrinkages

AN increase in exportations of rubber from native plantations in the Djambi district of Sumatra from 2,879 tons in 1921 to 9,667 in 1922, to 17,389 in 1923, and to 20,164 in eleven months in 1924 has greatly troubled planters on estates, just as it has led many consumers to hope that a flood of material from such sources would soon counteract the effect of restriction in British-controlled areas. Yet on investigating the surprising seven-fold growth of shipments of rubber in so short a period in the region named little basis is found for either the planters' fear or the consumers' hope.

In this district, an area about 30 per cent larger than Holland, the planting industry is conducted in a primitive way. Favored with cheap land, ideal soil and climate, the native does, indeed, make regular extensions; but such extensions in Djambi, as doubtless in many other such districts, are not the same as those made on well-managed estates. They are made more and more remote from roads and rivers, adding new labor and transportation handicaps with each extension. Unlike the estate planter, the native is forced to continually set out new trees because through crude, reckless overtapping of old plantings he is always killing the goose that lays the golden egg, and leaving trees so much damaged that they require years of rest.

Another notion has also been exploded, that rubber is produced much cheaper on a native plantation than on an estate. That has been only relatively true. Not only is the daily collection per native tapper much less than on an estate, and his margin for general charges much smaller; but the native must also sell his product cheap enough to the Singapore factory to allow the latter enough profit to put the rubber in marketable condition. Here lies the chief trouble with most native plantation crude. It is neither clean nor dry. An authentic report on Djambi rubber gives the dirt and moisture contents as averaging as high as 52 per cent since 1922. Hence the actual amount of usable rubber would be less than half of the export figures.

Compare such shrinkage, for instance, with that of Upriver fine Pará, a wild rubber averaging but 12 per cent; Islands fine, 15; Acre Bolivian, 16; Islands coarse, 20; Pontianaks, 25; Africans, 26; Manicobas and Centrals, 28; and Cauchos, 30. There is reason to believe that in some of these grades this shrinkage loss will soon be much reduced, and the volume considerably increased. A condition favoring quantity production is the long rest that many sources of wild rubber have enjoyed while planted rubber has been dominating the market, and during which time, too, an abundance of new growths yet untouched has been developing, not the least being the nearby guayule, vast tracts of which have been maturing to add substantially to the nation's rubber supply. It may take a little longer to market the wild product, but the chances are it will do more to relieve the strained crude situation than all the native grown rubber in the Far East.

Labor and Big Business

NOT many years ago combinations for production and distribution were decidedly taboo among voters generally, while among the labor element they were positively anathema. An official who favored trusts soon learned that he was an incumbrance as well as an incumbent; and a candidate who was rash enough to remark any merit in them took his political life in his hands. But conditions have been changing with the exigencies of trade. Big business has been justifying its existence, mass production has been solving the problem of economic manufacturing, and industries weakened by wasteful rivalry have found close cooperation the surest means of averting disaster. Despite an occasional lapse from grace here and there, the attitude of Labor has been growing markedly more liberal, its leaders conceding that more is to be gained by working with than by antagonizing Capital, and now even viewing indulgently, when not openly advocating, the union of competing concerns.

These broadening sentiments are cogently expressed in a recent address of Secretary of Labor Davis. As a spokesman for both Government and Labor, he made it plain that over-development of industry is a greater cause of unemployment than under-development. Instancing shoe manufacturing alone, he showed that 14¼ per cent of the factories, employing 60 4/10 per cent of the workers, and now producing 65 6/10 per cent of the American output, could with steady work for 300 days produce the country's 100 per cent requirement and at the same time yield each worker a decent living. Other industries, he said, can provide similar illustrations of waste in output and running time, and can amply emphasize the need of the removal of restrictive legislation so that unnecessary overhead, labor duplication, and excess of output can be reasonably regulated. More than many another, has the rubber industry felt the need of the stabilization which some such course should bring about; and it should assert its right, as, for example, the steel industry has done, to make such trade mergers as will insure fair return on its great investment, encourage simplification, minimize labor turn-over and like losses, stabilize employment, and enable it to assure its faithful workers a steady and perhaps more liberal wage.

LACKING STORAGE SPACE, THE UNITED STATES PATENT Office plans to dispose of by auction 155,000 models of inventions that were deposited up to the year 1884, when the law requiring models was amended. In the huge collection are doubtless many early models of goods and devices that marked milestones in the history of the art of manufacturing rubber. Some may have considerable educational value, and their prompt recovery from impending oblivion would redound greatly to the credit of the industrial leaders who were instrumental in establishing the present interesting rubber exhibit in the Smithsonian Institution.

The 1926 Line of Canvas Footwear

PROBABLY the outstanding example to date of how rubber manufacturers can meet the problem of the high crude rubber market, is exemplified in the 1926 line of tennis and canvas shoes, catalogs of which have just been given out to the trade. The past summer has seen the best tennis demand experienced for several years, the early spring weather starting the goods moving early in May, and replacements were generous in volume.

In constructing a line for 1926, the shoe designers were confronted on the one hand with high crude rubber prices—which of course hit the tennis line with the crêpe soles harder than any other branch of footwear—and on the other with boosting tennis prices out of the range of its class that would simply kill the demand and drive the business to the welt and turn play shoes put out by the leather trade.

Ostensibly, then, there is no increase in prices in the 1926 tennis line; that is to say, the shoe dealer can buy first class merchandise at the same price levels he could last year, and in some cases a little cheaper. But in the very few cases where the same shoes are offered with no construction changes, there is a price increase of fifteen to twenty per cent. With the exception of the premium quality athletic and basketball shoes, there has been a reshuffle of the cards and a new deal all around.

There was a time when basketball business, both amateur and professional, was handled by very few companies with special shoes. And these numbers ten years ago were nothing more than heavy "trimmed" sneakers built to stand the extra wear of the game. Today every tennis manufacturer in the country is putting out a basketball shoe which is the result of the combined efforts of prominent players and shoe construction experts. New features that have been added this year are the sponge rubber cushion heel, introduced by the Hood Rubber Co. last year, arch and instep strap, special fitting lasts, seam coverings to prevent chafing, and added toe reinforcements.

The basketball numbers of the various companies are: The B. F. Goodrich Rubber Co., the "Haskell," vulcanized crêpe sole, black rubber trimmed, lace to toe pattern; United States Rubber Co., the "Comet," featuring slim shank for snug fit at the arch, instep stay to support arch, sponge rubber cushion heel seat; Firestone Rubber Co., the "Thorogrip," with "Rubberribbed" sole, sponge cushion heel pad, Kool-foot insole, and pressure cured; Lambertville Rubber Co., the "Jimmy Brown" athletic shoe with the all leather top; La Crosse Rubber Co., the "Amazon," heavy crêpe sole and toe cap, instep stay, and patented ankle guard design; Beacon Falls Rubber Co., the "Grip-Sure," with cushion heel feature, and new molded crêpe sole design; Hood Rubber Co., "Greyhound," featuring non-chafing top and back seam, non-blistering, non-irritating comfort toe pattern, heavy combination counter, sponge rubber cushion heel, steel and fiber arch support, arch and instep strap, and Hood "Smokcrêpe" outsole; Converse Rubber Shoe Co., "Hickory," special peg top upper, double stitching, molded ankle patch; steam pressure cured crêpe sole, inside shank stay, extra length cushion heel, and new last. The Servus Rubber Co. is offering Dr. W. E. Meanwell's "Intercollegiate" Basket Ball shoe as designed by Wisconsin's famous coach, with several additional features, the pivot tread which forms a suction at the ball on the crêpe sole, stubber toe guards, cushion heel, arch support, and orthopædic heel. Canadian basketball shoes are designed along the same lines as the American varieties, the Gutta Percha "Forward" and the Columbus "Gym" carrying the new instep stay, crêpe soles and the various other features.

Although their names are not identified with the actual shoes, several other athletic coaches have played a part in the designing of basketball shoes. Edward Wachte, the Harvard basketball coach, is a strong endorser of the Hood "Greyhound" which embodies some of his ideas. The late Joe Fogarty, former coach of the University of Pennsylvania and later Yale, developed many features of the Converse "Professional," later embodied in the "All Star" and "Hickory."

While basketball is the biggest sport for which special shoes are designed, although, of course, the largest number of tennis shoes are worn by lawn tennis players and juvenile athletes, golf and track are sports for which a special shoe market is being developed. The Hood Rubber Co. carries an attractive "Golfshu" and "Trackshu" in the 1926 line. For running, Converse offers the "Fleetfoot."

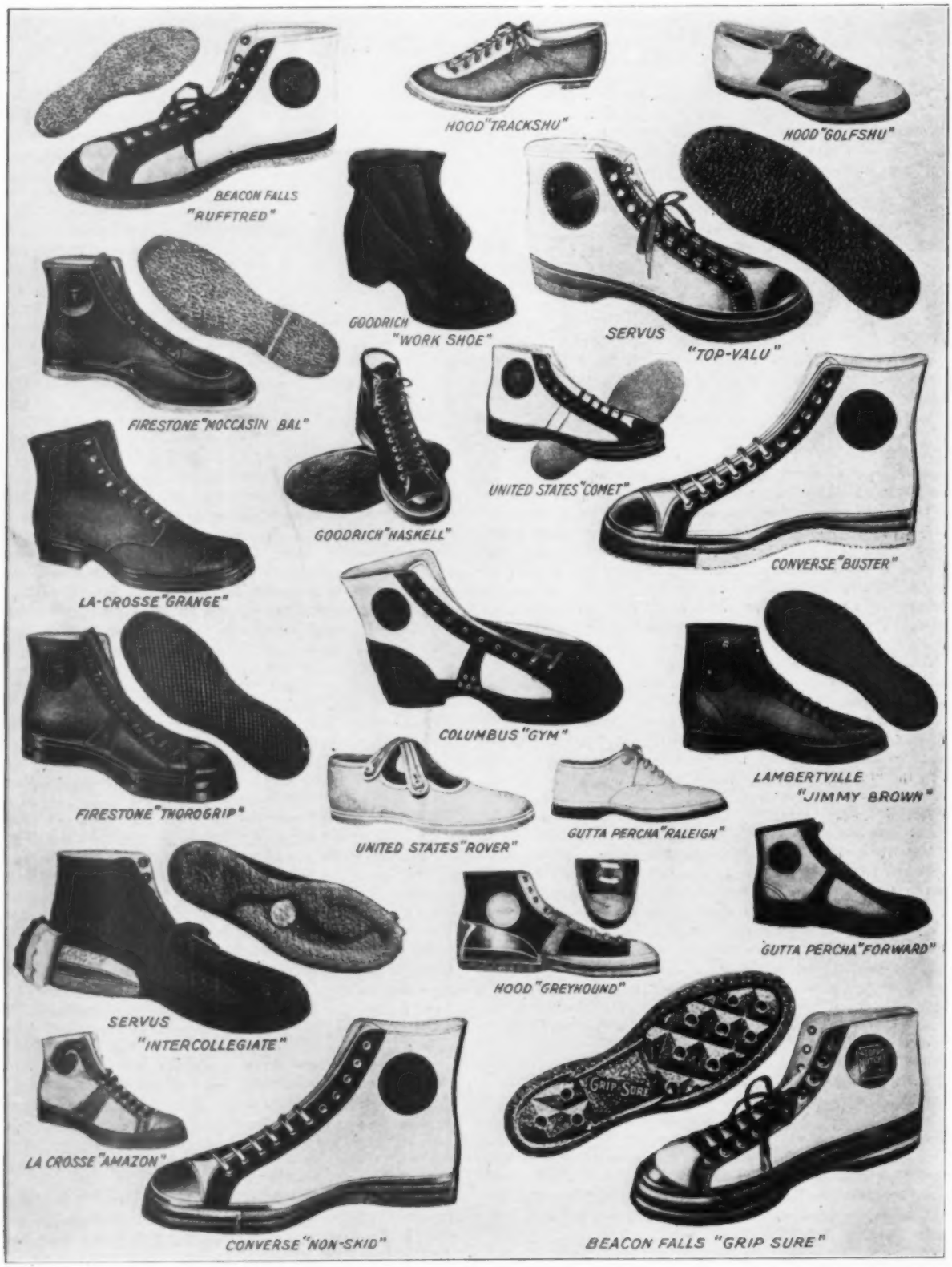
On these athletic numbers, there has been an increase in price to meet the cost of the added features. This is a quality market, and price is not the dominant factor, the player being interested primarily in getting a shoe that meets his every requirement.

The price ranges for the 1926 line fall into the following classes: $2.40 to $2.25, first quality tennis shoes for general wear; $1.85 class, work shoes and a few general numbers; $1.50 class, on which price the manufacturers have concentrated and striven to give the utmost value for the money, figuring that this price range will be the most attractive to the dealer who wants first class merchandise at a reasonable price. Most all of these shoes carry a crêpe sole, which of necessity must be lighter in weight than formerly; either 1.35 enameling duck or fabric weighing 7 ounces to the square yard for the outside uppers, backed to drill. The practice of backing ducks with rubber paste has probably been eliminated, and starch paste substituted. This has no effect on the quality as the purpose of backing two pieces of fabric together is merely to save labor and handling in the manufacturing operations. Insoling is constructed of specially processed sheetings backed by "rag."

How insistent is the demand for price merchandise can be seen from the fact that the rubber footwear manufacturers are offering a trimmed lace to toe tennis shoe with an imitation crêpe sole for $1.00 to the dealer. How this shoe is constructed for the price may be understood by an analysis of its construction. The outsole is compounded rubber, made light in color to imitate crêpe probably by the use of chrome yellow, and calendered on an engraved roll to imitate the surface of crêpe. The foxing is single ply gum, but calendered on a specially engraved roll to look like double fabric foxing. The insole is 5 yard sheeting backed with 20 gages of "rag," no friction or rag filler being used, making the shoe have a two piece "bottom." The upper is made of specially constructed enameling duck, either single filling, or light weight, backed with sheeting instead of drill. The trimmings are made of imitation leather, which can be compounded today without using much rubber by employing ground fiber. Thus it can be seen that the manufacturers have produced a shoe giving greater value for the money than ever before offered.

Another factor not to be overlooked which has helped the manufacturers keep the tennis shoe prices in line has been the concerted drive to reduce labor costs. Various exemplifications of continuous processing have been already adopted for tennis manufacturing with a material increase in output per operator. Machinery which will ultimately eliminate hand lasting altogether is rapidly coming into use.

Of the lowest priced shoes, the women's, misses', and children's cross strap pumps are most popular; they remain the most reasonably priced at 73, 66, and 61 cents respectively. These pumps have a wide sale for foreign as well as domestic trade. The larger companies also make men's plain untrimmed oxfords to sell for 72 cents to the dealer. The smaller companies do not



Features of the 1926 Line of Tennis and Canvas Shoes for Basketball, Sport and Summer Wear

specialize on this business as only enormous production makes possible a profit on a line figured as close as this one.

In reviewing the line a year ago the writer commented on the needless variety of kinds of tennis shoes, pointing out that one company at the time showed 43 different shoes in their catalog, most of which were made in all lasts, men's to children's. The rubber situation has evidently eliminated much of this waste, as one company, for example, is showing but 16 styles of shoes this year as against 34 last year. This is a greater reduction than that made by most companies, but the tendency is in that direction.

Forward buying, to date, has not been extremely heavy, but footwear manufacturers must realize that the retailer has changed his buying habits. Just as the spring dating plan on tires has been discarded, excessive stocking up on footwear should be discouraged in view of the crude rubber emergency.

Founder of the Rubber Shoe Industry

ONE hundred years ago the first rubber shoes to be marketed in America and later in Europe were introduced in a small way by a Boston merchant, Thomas C. Wales. A sketch of his career as pioneer inventor and successful merchant is of great present interest.

He was born on his father's farm in Stoughton, Massachusetts, November 10, 1805, being a direct descendant of Nathaniel Wales, who came in 1635 from Bristol, England, in the same ship that brought Rev. Cotton Mather, the noted writer and theologian, both settling in Boston. Young Wales went to school in Stoughton and stayed on the farm until he was 14, when he went to Boston and clerked for Amos Fitch, a retail shoe merchant. From 15 to 17 he worked with Joseph Thayer in the same line of business. After spending a year with another shoe dealer, Benjamin C. Harris, he was, at the age of 18, hired by Mr. Thayer to help establish a shoe business in New York City. Tired of the latter place, however, he accepted an offer from Mr. Harris to set him up in the shoe business in Boston, where he soon displayed uncommon enterprise.

What is said to have been the first India rubber shoe ever sold in the United States, or even abroad, so far as is known, was marketed by Mr. Wales in 1825. He had bought a number of such shoes from a sailor who had picked them up as curiosities in Pará, Brazil. Mr. Wales next got hold of a small lot of such shoes that had been brought to Salem, Massachusetts, from Brazil in a ship owned by Robert Upton; and, putting them on standard lasts, so improved their shape and appearance that they proved remarkably saleable. In fact, he soon developed a business in this new line of footwear that was country-wide. In 1830 he formed a partnership with his former employer, Mr. Harris, as Harris & Wales, to conduct a wholesale business in boots, shoes, and rubbers.

Financial reverses came in 1833, the partnership was ended, and Mr. Wales started a retail business in Boston, trading chiefly in rubber shoes. In the big money crisis of 1837 Mr. Wales, having indorsed many notes for friends, found himself embarrassed, suspended all payments, and made an assignment. Within a few years he had repaid all the money he had borrowed, discharged all the indebtedness he had incurred by indorsing notes, and had paid off half of all the other claims for which he had become liable. The remaining half he cleared up in 1866, adding interest for 22 years. Having closed up business on his own account, he established in Boston a commission business for the sale of boots, shoes, and rubbers.

Once more he plunged actively into the Brazilian rubber shoe trade, being aided by Captain John Bertram, a large ship owner of Salem, Massachusetts, who agreed to put two vessels into the Brazilian service on condition that Mr. Wales should become his agent. The latter was then the largest dealer in rubber shoes in the country. Captain Bertram empowered Mr. Wales to have modern-shaped lasts made and sent to Brazil, and on them the natives formed better shoes than they had made on their own rude clay models. The new goods, called "fabricas," met with considerable favor, 500,000 being sold in the United States and Europe within a year. Mr. Wales next became agent for the Goodyear Metallic Rubber Shoe Co., Naugatuck, Connecticut, and in 1851, with Captain Bertram, he bought a large part of the company's stock and became a director.

An important invention by Mr. Wales, and which he patented February 2, 1858, was the waterproof and cold-proof overshoe, made of cloth and rubber, named by him the "Wales Patent Arctic Gaiter," more familiarly known as the "arctic." In January, 1863, he patented a feature which overcame the tendency of the original arctic to tear apart on the upper side, especially at the edge and down the side, which device has proved immensely profitable to the manufacturing interests.

In various ways Mr. Wales was connected with the boot and shoe trade for nearly sixty years, finally transferring his active interests to his son, Nathaniel. He was married in 1826 to Mary Rebecca, daughter of Barzillai Holmes, of Boston, and Sally Flagg, of Lancaster, Massachusetts, the latter a grandniece of Benjamin Franklin. The couple had eleven children. Mr. Wales died in Boston, December 11, 1880.

N. A. W. M. D. HOLDS MEETING AT MEMPHIS

A very successful meeting of the National Association of Waste Material Dealers, Inc. was held October 6 at Memphis, Tennessee. Among the matters under discussion was a proposed change in the scrap rubber classification, this at present providing that a carload shall be understood to be fifteen tons unless otherwise specified. According to the new arrangements a carload unless otherwise agreed upon shall mean the minimum quantity at the lowest rate of freight recognized by the official classification tariff of the district in which the seller is located.

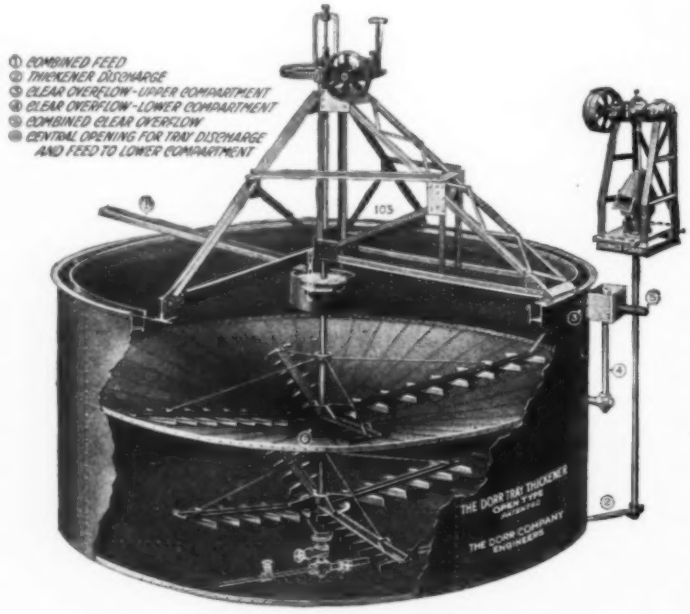
DURING THE FIRST EIGHT MONTHS OF 1925 MEXICO HAS purchased from the United States pneumatic casings to the value of $628,726; inner tubes, value $121,202; and solid tires having a value of $38,076.

Rubber Saving in Reclaiming

New Machine and Process

THE prevention of waste in industrial operations has become increasingly important in every line because competition necessitates that production be kept at maximum effectiveness. It is interesting to note that the greatly increased demand for reclaims, stimulated by the restricted supply of crude rubber, has caused reclaimers to seek means for eliminating rubber losses which hitherto have been either neglected or underestimated.

In the process of rubber reclaiming, finely ground vulcanized rubber is digested in containers with caustic soda and water. The defibered ground stock from the digesters requires to be thoroughly cleaned by washing. The usual method is to discharge the cooked mass into tanks and rotary screen washers to retain the rubber while a flow of water passes through the mass, removing the spent chemicals and soluble matters. Incidentally the flow of water carries away in suspension much fine rubber. Investigation has shown this loss to be of proportions hitherto unappreciated or even unsuspected, and of course well worth saving.



"Save-All" Thickener for Reclaimed Rubber

Efforts to save fine rubber suspended in the wash-water have been confined, when attempted at all, to discharging the flow from the screen washers through a series of settling tanks or tubs arranged tandem. Some sedimentation takes place in these tanks, but since the rate of inflow and outflow from tank to tank is the same, suspended material overflowing from the first tank overflows from the last one and is lost. Where settling tanks are arranged in parallel sets, instead of tandem, better results are obtained because the main inflow is subdivided and passes into each set of tanks in reduced volume of flow.

The settling tank system is rather crude and intermittent. The material salvaged in the tanks requires to be removed periodically by the costly and unpleasant method of hand shoveling. Also the operation of cleaning out the rubber sediment necessitates stoppage of the washing process and production.

Fortunately there is now available to the reclaimers a most efficient apparatus the adoption of which by several of the leaders has demonstrated full efficiency in rubber recovery. The real solution of the rubber reclaimers wash-water problem reveals an unexpected saving in rubber hitherto lost and eliminates the nuisance of stream pollution by discharging only clean wash water.

The problem of treating waste waters, whether sewage or industrial waste, is one of thickening the solid matter content and providing for its continuous removal, filtration and drying. For thickening and removing the solid material the continuous settling unit known as the Dorr thickener has become practically standard practice in a great many metallurgical and chemical industries where finely divided solid matter must be continuously settled from a dilute pulp. This special type of machine has been most successfully applied to the same problem in rubber reclaiming plants. In most instances the amount of rubber recovered exceeds expectations. Thickeners of this type are now installed at several representative rubber reclaiming plants where they are handling flows ranging from 200,000 to 700,000 gallons per 24 hours, and recovering from 1,200 to 7,000 pounds of stock per day.

The "Save-All" shown in the illustration consists of a heavy steel tank with a number of steel trays dividing it into several superimposed settling compartments, all of which are connected by central openings in the trays. A slowly revolving central shaft operated by motor drive carries radial arms with plough blades attached, each arm sweeping the bottom surface of its particular compartment. The water in which the rubber stock is suspended is continuously fed through the inlet pipe, discharging into a feed box at the center of the top surface. In this box a perforated wooden disk floats; the effect being to finely divide the stream as it enters the save-all causing the flow to distribute equally to each of the compartments. The rubber continuously settles in each compartment and is gently swept to the central openings by the revolving sweepers. It is collected at the bottom of the tank and continuously drawn off by a suitable sludge pump. The clarified liquid from which the stock has been settled overflows from each compartment to a suitable collection box to which the outlet pipe is attached and may be re-used in the plant or thrown to waste as desired.

In rubber reclaiming plants there is often encountered stock of very low gravity which tends to float on the surface of the tank and for this reason the save-all used in this industry is provided with a suitable mechanical scraping device which removes and collects this floating material. The sludge pump which withdraws the rubber sediment from the lower compartment of the thickener passes it on to some form of filter press from which the caked rubber is removed and dried for batching.

The use of the apparatus just described assures the desired separation continuously with no labor beyond an occasional lubrication and inspection. The rubber is recovered in very compact form as a thick sludge containing about 60 per cent moisture.

The Save-All thickener is the latest plant contribution to the technology of rubber. The advantages of this machine have been demonstrated effectively in rubber reclaiming as an instance of the application of the thickening process for salvaging manufacturing waste where loss was previously not suspected.

Rubber Equipment of the Shenandoah

Helium Gas Containers and How They are Made—Gas Valves—Water Ballast and Bumping Bags

ONE of the most serious questions raised at the hearing held by the naval court investigating the destruction of the airship Shenandoah in the Ohio Valley on September 3, was whether reducing the automatic gas valves on the rubberized gas bags from eighteen to eight contributed to the disaster. Some experts contended that removing ten valves lowered the safety factor considerably. When the airship was caught in the fatal squall the fast-expanding helium gas bags, unable to be relieved quickly, wrenched the hull and weakened the duralumin girders so that the wind easily broke the airship in two. Other experts claimed that the gas bags could not, even with the changed valving, have been distended enough to have done any damage in that way.

Thata our readers may obtain a clear idea of the relative merits of the disputed points, a description is herewith given of the helium gas bags, gas valves and other rubberized devices for controlling the buoyancy of the ill-fated Shenandoah.

Gas Bags and Safety Valves

The twenty rubberized fabric gas bags packed in the hull of the airship when inflated resembled huge drums, 75 feet in diameter, which fitted over the internal keel corridor. Through the apex of the tunnel ran a heavy rubber manifold, connecting with each of the gas bags. Originally there were eighteen safety valves, afterward reduced to eight, that automatically released the gas when expansion reached the perilous point, or when the navigators desired to descend by making the airship heavier.

Making the Helium Bags

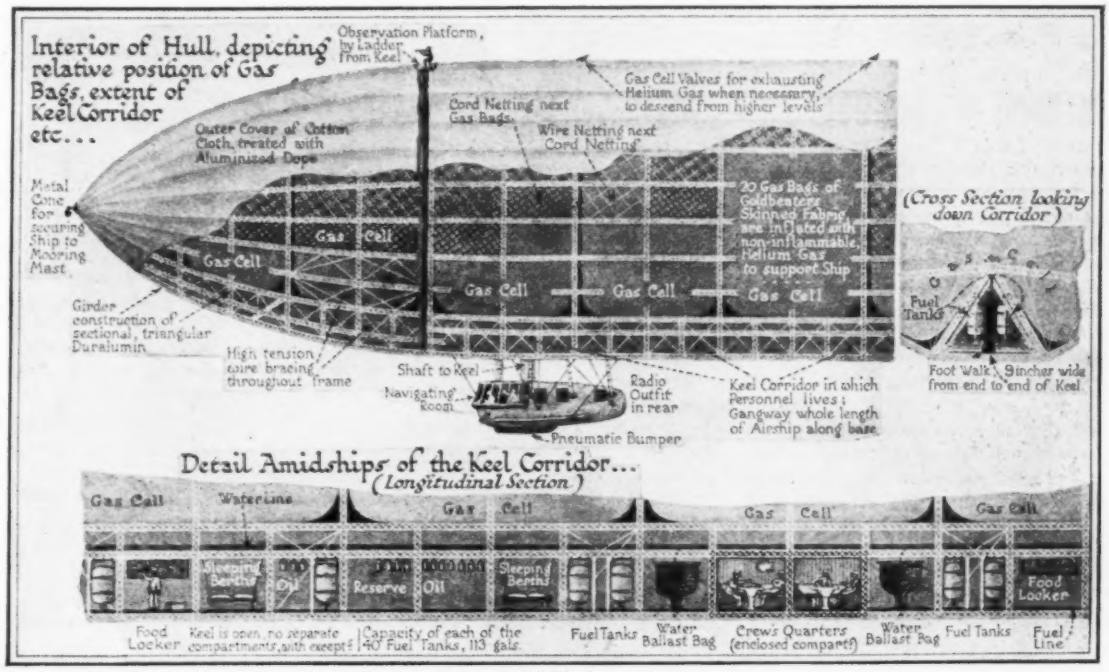
The gas bags or cells varied from 150,000 cubic feet capacity in the cylindrical middle section of the ship to the tail-end cell with but 14,000 cubic feet. They were made from panels of one-ply, closely-woven cotton fabric of 2.65 ounces per square yard and proofed with rubber on one side, which added .3 of an ounce. Panels were built up into four major sections: flat or transverse forward and aft, body or circumferential, and the part fitting over the triangular corridor, all of which were covered on the rubbered or inner side with goldbeaters' skin.

The panels of rubberized fabric for the gas cell sections were laid out on long tables, and seams formed by overlapping edges for ¾-inch, uniting them with cold-curing rubber cement, and then taping them, rubber solution being used as an adhesive. Then the fabric with proofed side up was pulled smooth and thin coats of rubber cement applied. Each coat was allowed to dry well before the next was put on, five coats insuring ample adhesion, and while the last coat was still tacky the skins were applied.

Applying Goldbeaters' Skin

The goldbeaters' skins, having been cleaned, stretched, and inspected with transmitted light for pinholes, thin spots, or other defects, were placed in a solution of one part of glycerine to 16 to 19 parts of water, the latter proportioned to air humidity. While still wet the skins were laid on the tacky surface of the fabric much as slates are placed on a roof, with an overlap of about 1½ inches, the skins adhering to each other as readily when dry as to the rubber-solutioned fabric. A liberal margin of the panel fabric was left unskinned so that it could be joined to the other panels, it being impossible for the dry animal membrane to unite satisfactorily with rubber cement.

Next, the skinned surfaces were coated with a special moisture



Courtesy of the National Geographic Society. Drawn by Charles E. Riddiford

A Pictorial Diagram of the Shenandoah

and abrasion-resistant varnish, and the various sections of the gas bags cemented together, but before this was quite completed the skin-lined side had to be turned inside. The skin lining of the Shenandoah's gas bags required portions of the entrails of over 900,000 cattle.

Accessories of the gas bags on the great air craft were valve petticoats, inflation sleeves, emptying necks, cone fittings for axial (heavy cable extending from end to end of the ship) or other wires passing through the cells, and handling patches, all of which were fastened in place with rubber cement. When ready for filling with gas the bag material registered these weights: cloth, 2.0 ounces per square yard; proofing, .6; cement, .9; skins, .7; varnish, .35; total, 4.55 ounces. Skin lining raised the tensile strength of the raw fabric from 40 pounds to from 50 to 52 pounds per inch. Fabric for accessories was 2-ply, and proofed with rubber between and on outer sides of the plies.

The Airship's Gas Valves

On the upper side of each gas bag was a maneuvering valve operated by the commander in the control car. Each valve was fastened to a reinforced hole in the envelope, and between the two was a rubberized fabric device to afford flexible connection and facilitate repairs. Near the bottom of each bag was an automatic valve of the Gammeter type serving much the same purpose as a steam boiler safety valve, and each valve having a vent into a center chimney or exhaust trunk between the gas bag bays. An emergency closing device allowed the pilot to hold or close the valve from the control board. It was the reduction in the number of automatic valves on the Shenandoah that occasioned sharp debate at the recent naval inquiry.

Rubber Water Ballast Bags

Hanging fore and aft in the keel corridor were rubberized water ballast bags which could be used for a quick change of trim when landing. Sliding them forward keeps the rudder from striking the ground; backward averts a nose-dive, or to right the ship when in the air. They could also be quickly emptied, allowing the ship to rise rapidly.

The standard bag, carrying up to 2,500 pounds of water, was pearshaped in cross section, laced at the top, and provided with a quick-acting valve for swiftly discharging the water. A 3-ply cotton fabric was used in the construction, each ply weighing 110 grams per square meter and to which is added a proofing of rubber of 50 grams, making the bag material finally weigh 480 grams per square meter.

Emergency water ballast was provided by bags of smaller capacity, and of slightly different form from the standard bags. They were intended for quickly releasing a large quantity of water, a 500-pound bag being emptied in 2 seconds. They were made of 3-ply rubbered fabric and fitted with a long sleeve which was held above the level of the water until an order came to drop it instantly.

Rubber Bumping Bags

The control car forward and the five gondolas containing the engines and propellers behind the car were cushioned by large rubber bumping bags having a hollow space in the center to be filled with gas. While designed primarily to absorb shock in landing, these bags when gas-filled also served to lighten the load.

American Achievements

The production of the skin-lined gas bags for the Shenandoah has been regarded by the Navy as a notable achievement. Like the metal for the ship's skeleton, no suitable gas fabric had ever been produced in this country. It remained for the Americans to invent duralumin, a metal strong and light. Next they produced a superior rubberized fabric, and a rubber cement more efficient than glue for attaching goldbeaters' skin to the cloth.

Customs Appraisers' Decisions

No. 50067. Protest 68786—G of Baltimore & Ohio R. R. Co. (Baltimore) and protests 86188—G of J. J. Buchey & Co. (Philadelphia). Large rubber balls, decorated, classified as toys at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable at 30 per cent under paragraph 1402. Opinions by Sullivan, G. A. United States v. Stewart (12 Ct. Cust. Appls. —; T. D. 40734) followed, holding rubber balls like those here in question dutiable at 30 per cent under paragraph 1402.—*Treasury Decisions*, Volume 48, No. 14, page 19.

No. 50080. Protest 24276—G of Bullocks (Los Angeles). Rubber balls classified as toys at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable at 30 per cent under paragraph 1402. Opinions by Sullivan, G. A. United States v. Stewart (12 Ct. Cust. Appls.—; T. D. 40734) followed holding rubber balls like those here in question dutiable at 30 per cent under paragraph 1402.—*Treasury Decisions*, Volume 48, No. 15, page 31.

No. 50190. Protest 69546—G of George Borgfeldt & Co. (Philadelphia), and protests 68783—G, etc., of F. W. Woolworth Co. et al (Baltimore, etc.). Rubber balls classified as toys at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable at 30 per cent under paragraph 1402. Opinions by Sullivan, G. A. On the authority of G. A. 8807 (T. D. 40210), affirmed in United States v. Stewart (12 Ct. Cust. Appls. —; T. D. 40734) the merchandise in question was held dutiable under the provision for balls in paragraph 1402.—*Treasury Decisions*, Volume 48, No. 16, page 12.

DRAWBACK

CLOTH, RUBBERIZED. Manufactured by Archer Strauss Rubber Co., Framingham, Massachusetts, with the use of imported piece goods. Rate effective on and after June 26, 1925. The drawback allowance shall not exceed the duty paid, less 1 per cent thereof, on the imported material of the kind used in producing the rubberized cloth exported, less the quantity thereof which the value of the waste will replace, as shown by the abstract from the record provided for above.—*Treasury Decisions*, Volume 48, No. 14, page 3.

THREAD, RUBBER, IN WARPS OR SKEINS. Manufactured by the United States Rubber Co., New York, N. Y., with the use of imported antimony at its factory located at Providence, Rhode Island. Rate effective on and after May 11, 1925. In liquidation the quantity of imported antimony which may be taken as a basis for the allowance of drawback may equal the quantity used in the manufacture of the exported rubber thread as shown by the abstract from the manufacturing record.—*Treasury Decisions*, Volume 48, No. 14, page 7.

EXPORTS OF RUBBER TOYS AND BALLOONS INCREASE

It is interesting to note the steady advance in American exports of rubber toys, balls and balloons, the combined values for these goods reaching a total during the first quarter of 1925 of $318,028, as compared with $196,099, the figures for the corresponding period of 1924. The shipment during March alone of the present year was estimated at $135,894, the highest monthly total for such goods yet recorded, the largest shipment during 1924 being valued at $117,282. Total exports from the United States of these commodities rose during 1924 to a value of $880,578, while the figure for the present year will undoubtedly be in excess of that amount. Later statistics indicate still greater advances, the figure for April exports reaching $144,050, while shipments for the second quarter stand at $379,062. The July estimate was $97,638, and that for August, $101,064.

Contour Terracing in Hevea Planting

A System of Soil and Moisture Conservation Applied to Rubber Tree Cultivation on Hilly Land

By John C. Treadwell,
Late of the U. S. Crude Rubber Survey

In the early days of the rubber planting industry in East India, plantations were universally laid out in geometrical patterns and the trees were planted in straight rows regardless of land contour, the principal idea being to so lay out the blocks that control of tapping tasks would be facilitated for the inspector. The result was that while the trees stood in beautifully straight lines, easy of inspection, the task of the tapping coolies was rendered extremely difficult, as any given row of trees did not occupy the same contour level, thus compelling the coolie to climb from tree to tree for the purpose of tapping and collecting. Furthermore the trees were set out on the hill sides without any provision for soil or moisture conservation, with the result that flood waters washed away the top soil, leaving the ground barren indeed an arduous task for a man to pass from tree to tree. But even this class of work was carried out only on the estates whose capital allowed of the heavy expenditure necessary for such unsystematic work, while the managers of poor estates merely viewed the annual loss of soil with alarm, being powerless to stop the flow for lack of funds.

In 1917 the Continental Plantation Co. purchased a tract of hilly land in Sumatra, which had been repeatedly condemned by members of the planting fraternity as being entirely too hilly and broken for rubber planting development, the principal argument being that the soil would be subject to such severe erosion that the estate would be ruined and the cost of tapping would be excessive. During the ensuing year the writer was detailed by

(A) THE FIRST TERRACE. (B) SAME TERRACE WITH TREE DEVELOPMENT SIX YEARS LATER. (C) TERRACES AND CATCH PITS ON ROLLING LAND. (D) TERRACING IN A WATER COURSE TO PREVENT EROSION. (E) DETAIL OF TERRACE AND CATCH PIT.

of humus, liable to erosion during torrents and to baking during the dry spells. As the trees reached maturity the roots became exposed and many acres of good rubber trees were lost as a consequence, to say nothing of the lower yields due to the drying out of the soil.

Planters gradually awoke to the necessity of conserving the soil and dams were built about the trees, at excessive cost, in a vain endeavor to retain the soil, the valuable portions of which had already washed away to the valleys to clog the lower reaches of the streams. By the methods employed each tree was treated as a unit, the result being to so cut up the hill sides that it was

the company to supervise operations in Sumatra. With the object of learning the most approved methods for planting hilly lands, he made a tour of the rubber planting districts of British and Dutch East Indies, but not finding an example which had proven effective he was confronted with the problem of designing an entirely new and rational system which was immediately put into effect.

It was at once realized that the old method of planting in straight lines left the trees staggered over the hill sides so that tapping operations were difficult and really effective soil conservation was impossible, from which it became obvious that an

entirely different system should be developed. The problems to be considered were:

(1) The work should be laid out in such manner that the labor of tapping would not be greater than on flat land;

(2) The original top soil with its store of humus should be conserved;

(3) Torrential waters should be retained and diverted in such manner as to prevent flooding and erosion;

(4) Terraces should be so placed as to allow the proper number and spacing of trees;

(5) The residual moisture from rainfall should be conserved and fed back to the trees during periods of deficient rainfall;

(6) Drainage in the low lands should be designed to carry away excess water to prevent water logging at the bases of the hills;

(7) The cost must be low so that the charge to capital should not exceed the advantages gained.

To meet these requirements it became necessary to discard the idea of laying out the ground in geometrical patterns and to adopt a system of contour terracing whereby the trees would all be set on level terraces following the contours of the hills, thus affording level pathways along which the coolies could pass from tree to tree with no more effort than on level ground.

The terraces were laid out by means of a simple leveling rod just the proper length to space the planting holes and locate the contour level in one operation. The instrument consisted simply of a ½-inch by 6-inch board 16 feet long, with boards 36 inches long nailed to each end, and spread so that the reach at the tips of these boards was 20 feet apart. On the upper side of the long board was inserted a spirit level. The method of use was to first drive a stake, then place one foot of the leveling board on the stake and swing the fore end until when resting on the ground the bubble indicated the level. A stake was driven and the operation repeated. The rear foot was cut 6 inches shorter than the fore foot so that when the short foot rested on the stake the fore foot was on the ground. The stakes indicated the positions of the planting holes as well as establishing the level to which the terraces were to be cut.

All of the work of leveling was carried out by coolies who accomplished the task with a surprising degree of accuracy. The finished terraces are approximately 6 feet wide, having a burm 9 inches high on the outer edge, the floor of the terrace sloping gently towards the body of the hill. Catch pits 8 feet long by 18 inches deep were placed between the locations of the planting holes, leaving a table on which the tree stands above the floor of the terrace, the object of the catch pit being to gather leaf mold and storage water. The total carrying capacity was so calculated that the terraces combined with the catch pits would carry the maximum rainfall, allowing the impounded water to be absorbed gradually thus preventing heavy flooding down the hill sides.

The terraces were spaced to average 20 feet apart and the planting distance was placed according to the then accepted practice of 20 feet along the terraces, thus giving an average of about 100 trees to the acre. The average labor cost for the completed work was about $4.00 per acre.

Terracing has long been in vogue for rice growing and fruit cultivation, and catch pits are in common use on tea plantations, but a systematic method of preparing hillsides for rubber planting has never before been undertaken on a large scale.

The system worked out on the Continental plantation has been used as an example to demonstrate to rubber planters how they may utilize hilly land to a far greater extent than was formerly realized and to illustrate the possibility of getting away from low soggy lands to the hills where greater immunity from disease and decided increases in yields of rubber can be obtained, as proven by experience.

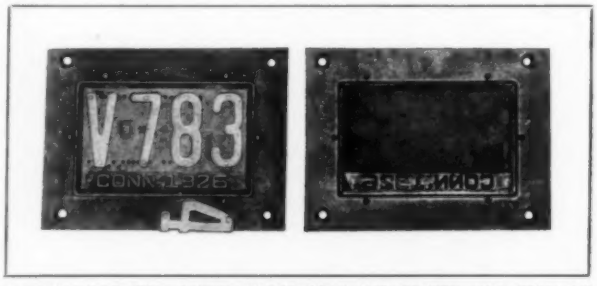
The company's plantation has now come into bearing and recent reports justify the statement that the plan as originally laid out and afterwards completed by O. D. Hargis, left little to be desired in the way of improvement as the top soil has been retained, the trees have been fed with moisture from the catch pits, resulting in strong, vigorous growth and production well above the average.

Although the preliminary work was widely criticized by local planters as being a dangerous innovation the same critics of those days are at the present time the most ardent supporters of the system and it is being employed on enormous acreages of new development.

Rubber in Making Automobile Markers

In the manufacture of embossed numbered plates for automobile markers cured sheet rubber serves as a pressure pad to effect the embossing by the die, the two parts of which are shown in the accompanying illustration. The bottom, or male number, is fastened to a horizontal slide on the press which moves in as the upper, or female die, moves down. When the lower die is slid outward it is accessible for changing the large characters which are located on the die plate by pins so as to be easily removable and interchangeable. The top edges of the characters are all rounded to a liberal radius to prevent cutting the metal.

In the upper die the area including all the characters is made up of a rubber pressure pad set into the die plate. When the



SHOWING HOW THE LARGE CHARACTERS ARE SPACED AND HELD ON THE LOWER OR MALE DIE PLATE BY PINS; ALSO THE LOCATION OF THE RUBBER PRESSURE PAD IN THE UPPER OR FEMALE DIE.

die descends this rubber pad squeezes against the marker blank, stamping the metal down around the raised figures of the lower die. The pad must contain vent holes to allow the escape of trapped air, otherwise the rubber will not force the metal down into every depression. The small printing at the bottom and the bead surrounding the marker are made by raised and sunken portions of the two dies, which match and come together to form the design.

The practice of using a rubber pressure pad in the upper die instead of sunken steel figures, eliminates the necessity of changing the figures of both dies after each operation, saving half the time and lessening the chances of injury to the operator. Also the rubber pressure pad simplifies making the upper die. It does away with the expensive work of sinking the figures and makes it unnecessary to provide for changing upper figures after embossing each new member.

The presses used in this process are manufactured by the Waterbury Farrel Foundry & Machine Co., Waterbury, Connecticut.

BOTH ITALY AND SPAIN ARE INCREASING THEIR IMPORTATIONS OF American-made rubber thread, the former country taking such goods during the first half of 1925 to the value of $71,115, while Spain's purchases for the period total $32,227. Corresponding values for the entire year 1922 were respectively $44,619 and $17,744. During July, 1925, Italy's purchase was valued at $4,708 and that of Spain at $13,877. Italy's August figure was $13,987, while Spain made no purchase.

Buses, Trucks, and Crude Rubber Consumption

Tire Equipment Requirements in Tons of Rubber

THE popularity of buses for city, interurban and touring service has greatly extended their use in all parts of the country. At the close of 1924, 60,000 motor buses were in service in the United States, of which about 3,250 were run by electric railways and steam roads, 20,000 by schools, and the remaining 36,750 by independents.

The demand for buses this year is adding 1,000 weekly to the service, and at this rate of increase bus production for 1925 will nearly equal the registration for 1924 and carry the total above 100,000. If the present yearly rate of increase is maintained for the next five years 300,000 buses will be in service in 1930.

Reasons for Bus Popularity

Some of the causes for the rapid extension of buses in public favor are indicated by the following facts:

The electric railway industry has accepted the bus as a feeder and as a supplementary service. More than 250 of the 821 electric lines are already using bus lines and others are being added to the list every day. Steam railroads are substituting bus lines for short connecting lines.

Starting with a make-shift truck chassis with a special body, bus operators generally have now adopted the all-bus design. Air-cushion seats, wide aisles, plate glass windows with silk hangings, wicker chair frames, smoking compartments and attractive exterior color schemes, all have been added rapidly to meet the public demand for greater comfort and luxury.

Tire construction, also, has been revolutionized by the development of the bus industry. Demand for greater riding comfort under the severe service requirements of buses has caused the development of new tire designs, rapidly replacing solid tires with air cushion, giant pneumatics, the customary standard equipment, with special balloon tires.

Rubber in Bus Tire Equipment

The buses now in service, while of various designs, are equipped in general with six giant pneumatic tires, 36 by 6 inch, 10 ply. These are mounted single front and dual rear. Each tire contains about 30 pounds of crude rubber, and a set of 6 tires, 180 pounds. Each set of 6 inner tubes accounts for 18 pounds of rubber. The total crude rubber represented in the original tire and tube equipment of 1,000 buses is therefore 88 tons.

Bus tire life is figured at 15,000 miles and average daily service at 125 miles. Thus a bus requires 2½ sets or 15 tires yearly and a double set of tire tubes. On this basis bus tire and tube equipment and replacement per 1,000 buses, require 217 tons of crude rubber, amounting for the prospective 50,000 buses a year, to 10,850 tons annually.

Motor Trucks for Freight Movement

Coincident with the rapid increase in buses is the growing truck demand for branch and short haul service both by railways and independents.

In the United States and Canada 51 railroads are now using motor trucks as part of their shipping service and 15 steam railroads contemplate or are investigating the use of trucks or expect to add to their present trucking service.

For the first 7 months of the current year truck production was 46,037 more than for the corresponding period of one year ago.

Increase of Heavy Trucks

The probable increase of truck registration to 4,000,000 within the next five years will include about 325,000 trucks of capacities exceeding 1-ton each. According to Table I, these 325,000 trucks will comprise the following numbers by capacity: 1½-tons, 140,562; 2-tons, 40,625; 2½-tons, 69,062; 3½-tons, 18,687; 5-tons, 32,502; over 5-tons, 23,562.

The customary tire equipment of trucks above 1-ton capacity is indicated in Table III. Half the 1½-ton trucks have pneumatic tires and half have solid tires. On 3½-ton trucks the proportions of 36- to 40-inch tires used is also equal.

TABLE I—TRUCK PRODUCTION BY CAPACITIES—PER CENT

Size	1919 Percent	1920 Percent	1921 Percent	1922 Percent	1923 Percent	1924 Percent
¼ ton or less	21.0	19.0	22.9	24.5	11.3	10.8
1 ton	47.0	51.0	54.1	58.5	70.1	71.4
1½ ton	8.5	11.0	4.8	2.8	7.7	7.7
2 ton	10.0	8.0	7.6	5.5	3.8	2.2
2½ ton	5.5	4.0	2.7	4.5	3.2	3.8
3½ ton	3.8	4.0	2.3	1.3	1.7	1.0
5 ton	2.9	2.0	3.2	2.3	1.2	1.8
Over 5 ton and spec.	1.3	1.0	2.4	.6	1.0	1.3
Total	100%	100%	100%	100%	100%	100%

TABLE II—TRUCK PRODUCTION BY CAPACITIES—NUMBER

Size	1919 Number	1920 Number	1921 Number	1922 Number	1923 Number	1924 Number
¼ ton or less	66,436	61,187	33,809	62,194	44,198	40,324
1 ton	148,691	164,240	79,844	147,796	275,343	267,790
1½ ton	26,891	35,424	7,076	7,134	30,249	28,946
2 ton	31,636	25,763	11,206	13,830	14,998	8,118
2½ ton	17,400	12,871	3,958	11,247	12,519	14,105
3½ ton	12,022	12,893	3,343	3,319	6,761	3,526
5 ton	9,175	6,441	4,714	5,718	4,611	6,548
Over 5 ton and spec.	4,113	3,220	3,600	1,430	4,081	4,960
Total	316,364	322,039	147,550	252,668	392,760	374,317

TABLE III—TIRE EQUIPMENT BY TRUCK CAPACITIES

Truck Capacity Tons	Front Wheels	Rear Wheels Single	Rear Wheels Dual	Type Tires
¾	34 x 5	34 x 5		Pneumatic
1	34 x 5	34 x 5		Pneumatic
1½	34 x 5	36 x 6		Pneumatic
1½	36 x 4	36 x 5		Solid
2	36 x 4	36 x 8 or 36 x 4		Solid
2½	36 x 4	36 x 8 or 36 x 4		Solid
3	36 x 5	36 x 10 or 36 x 5		Solid
3½	36 x 5	40 x 10 or 40 x 5		Solid
5	36 x 6	40 x 12 or 40 x 6		Solid
5½	36 x 6	40 x 12 or 40 x 6		Solid

Rubber in Truck Tires

The average specific gravity of soft rubber in solid tires is about 200. Its content of crude rubber runs from 70 to 75 per cent by volume. Table IV indicates, on this basis, the respective tonnages of crude rubber required for the tires for trucks of the capacities named.

TABLE IV—TRUCK CAPACITIES AND CRUDE RUBBER IN TIRES

Truck Capacities Tons	Crude Rubber in Tires Per 1,000 Trucks Tons	Types of Tires
1½	88	Pneumatic
1½	40	Solid
2	48	Solid
2½	48	Solid
3½	75	Solid
5 and over	90	Solid

It is apparent from this data that the 325,000 heavy trucks believed to be due within 5 years will require about 16,500 tons of crude rubber or 3,500 tons yearly for original equipment.

Assuming average daily truck service at 60 miles and tire life at 12,000 miles, will consume two sets of tires yearly requiring an additional 3,500 tons of crude rubber to replace the annual wear of tires on heavy trucks, or a total of 7,000 tons yearly for equipment and wear.

Bus and Truck Tire Wear

Tire wear in bus and truck service is more continuous than is the case in ordinary passenger or light truck use. With the growth of buses and trucks this factor will have an increasing influence in enlarging the crude rubber demand. Offsetting this increase in consumption of crude rubber will be the greater tonnage of scrap tires available for the rubber reclaiming industry.

The increase in buses and heavy trucks alone will thus enlarge the crude rubber yearly demand of the United States by something like 10,850 tons for buses and 7,000 tons for trucks, a combined total of 17,850 tons.

Increasing success in the development and use of reclaimed rubber and wear resisting compounding ingredients in tire stocks will doubtless lessen by an appreciable amount the crude rubber demand for tires and other rubber manufactures as well.

Tire Retreads Made from Scrap Rubber

CRUDE rubber at 20 cents or at 70 does not trouble George T. Matsanaga, who owns a very successful factory on the Pacific Coast. Incidentally it is the only Japanese rubber factory in the United States and its processes and machinery are original and successful.

The chief business of this concern is retread work on the tires used by the important stage companies throughout Southern California. Only a modicum of crude rubber is used, and no mixed stocks. The retread gum is made from solid tires ground fine without devulcanization or compounding of any sort, pressed into shape, applied and vulcanized into place.

Individual customers are quoted as saying that the retreads give uncommon satisfaction. In one case, it is said, a tire continually subjected to hard service was retreaded with this material five times, its owner getting over 90,000 miles out of it, and demurring at a sixth operation only because he feared that the carcass might be too old, although the foreman retreader offered a wager that it would stand at least one more soling and score over 100,000 miles.

The method of reclaiming the old rubber and forming it into tread stock is simple. Solid tire stock is chosen to the exclusion of pneumatic treads because it is not only easier to manipulate, but because of its tough and resilient quality and because, even though it may come from many sources, it has no adhering cotton fibers, and is much more uniform and dependable than "pneu" treads. The company's chief trouble is to get enough suitable material for working.

Referring to Figure 1, scrap solid tires are sliced into segments about 4 to 6 inches long by 1 to 1½ inches square, by a power

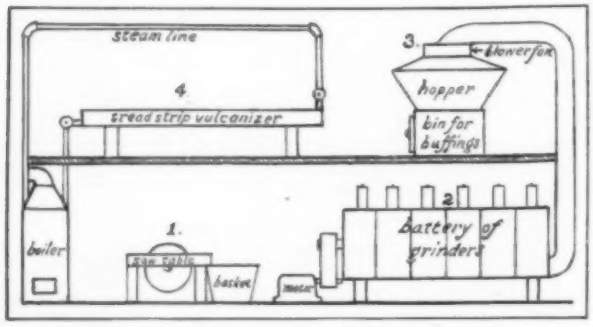


Fig. 1. Process for Producing Treads from Solid Tire Scrap

saw. The pieces are placed in weighted cylinders poised over emery wheels separately enclosed in buffing boxes. A large tube connects these boxes with a hopper into which an exhaust fan deposits the fluffy, velvety black rubber buffings, that are sieved through a fine wire screen into a bin below the hopper. Figure 2 is an enlarged view of the buffing boxes showing details of one grinder.

Retread strip is then made by filling a 12-foot long channel in a steam table with the buffings, laying a strip of heavy canvas belting on the buffings, and then clamping down upon it a flat iron bar

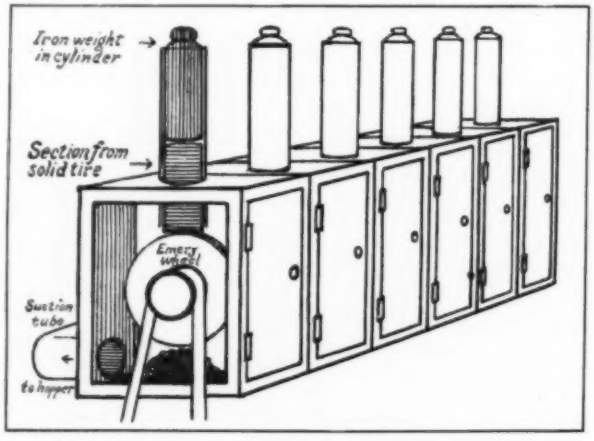


Fig. 2. Enlarged View of Rubber Scrap Grinders

and steadily increasing the pressure by tightening the screws, while the heat from 55 pounds of steam causes the rubber to flow and mold it into a strip that is semi-cured. It is not deemed necessary to add any softening agent to make a plastic mass, or to extrude it through dies as is done originally in making solid tires and most retread stock; nor is it considered essential to water-cool the strip, as is done in large mills, to consolidate the material, enhance tensile strength, minimize porosity, and to guard against gas pockets, etc. Even without such processes the stock is tough, dense, tacky, and pliable.

The actual mode of repairing differs but little from that of other vulcanizing shops, although the claim is made that especial care is taken. After a carcass is inspected, the old tread and breaker strip are removed, the exposed surface is buffed clean, and the usual coats of vulcanizing cement are applied. New cushion gum and breaker strip are laid on, and the retread strip drawn around the tire and well stitched down. The newly-soled shoe is placed in a third-circle retread mold, 50 pounds of steam turned on for 50 minutes, and the clamps continually tightened in order to avert the formation of blisters; moreover, increasing compression is needed if a matrix pattern is desired, and such designs the solid-tire retread material takes with remarkable sharpness.

COMING MEETINGS OF S. A. E.

The Society of Automotive Engineers, Inc., will hold a service engineering meeting at the Hotel La Salle, Chicago, Illinois, on November 9 and 10, and an automotive transportation meeting on November 13 and 14 at the Benjamin Franklin Hotel, Philadelphia, Pennsylvania. Interesting programs for both sessions have been prepared.

Separator Paper for Rubber Footwear Manufacture

A New Development—Practical Factory Demonstrations—Advantages and Savings

AFTER several years of experimenting and testing in actual service, a new separator paper has been developed which has overcome many difficulties in rubber footwear manufacture, improved the quality of the goods and reduced manufacturing costs. This is accomplished by preserving the tack of various coated fabrics, eliminating the use of cloth liners and the labor of handling them, and abolishing the use of talc to facilitate ply separation.

This new paper is known as "Linerette" and at present may be obtained in 40 pounds and heavier base stocks in widths up to 46 inches. It is treated with a solution which renders it absolutely impervious to rubber under all conditions of temperature. This solution contains no oil or other ingredients harmful to rubber compounds, therefore the clippings may be mixed with the regular shoe room scrap and worked away in the usual manner.

During the experimental stage this separator paper was tried out in a footwear factory, being put to every conceiable use under all kinds of conditions. As a result of these tests, it was adopted for immediate use in some places. In other places further tests were run before the desired effects were obtained.

Advantageous With Frictioned Sheetings

In one of the experiments a roll of separator paper was taken to the friction calender and hot frictioned sheeting run into it, using the paper in place of the usual cloth liner. Care was taken to see that the paper was started straight with the frictioned cloth. It was found advisable to rig up a slight tension to keep the paper taut as it was fed into the stock and it proved more satisfactory to place the wind-up holding the paper below that of the finished stock. When the roll was finished a cord was tied around the center to keep it from unrolling, and it was then trucked to the stock room and not favored in any way, being allowed to age the usual two or three days before cutting. It was then taken and plied up for cutting, but instead of removing the paper liner as is the practice with the cloth liner, the paper was unrolled with the friction, thus serving the double purpose of cloth liner and separator paper. The stock was then taken to the double clicking machine and the parts cut out in the usual manner.

Some of the important results of this experiment were: (1) The parts separated more easily than with ordinary separator papers, which are put on cold stock after the cloth liner is removed; (2) The dies cut out the parts cleaner with no ripping or tearing; (3) The original "tack" of the stock was better preserved, as there was no lint or dust from cloth liners.

The savings accomplished were: (1) Investment in cloth liners, the life of which averages about one year; (2) Expense of rewinding, trucking, and cleaning liners which in the plant in question required steady employment of two men; (3) Expense of ordinary separator paper; (4) Investment in machinery and space for storage and handling of liners. Rolls of paper take up much less room and can be delivered to calenders as required.

Against these savings the only charge is the difference between the cost of this paper and of ordinary separator paper, which is very slight and largely due to weight, as the new paper is of necessity slightly heavier than ordinary separator paper. The direct savings by using this paper instead of cloth for liners and the saving in labor in handling them more than offset the extra charge for the new paper.

Plying Up Stock by Drum Method

Some footwear factories ply up stock for cutting by the drum method, which, while being a time saver, causes humps and buckling in the stock. When smoothed out there is an increased wastage due to the outside plies being longer than the inside, making the edges uneven. The hand method while slower insures a better layout of stock. If any difficulties were to be encountered in the use of this new paper they would occur in plying up stock by the drum method, but as it happened, the original experiments were made in a factory where this method was used and no insurmountable obstacles were encountered.

Successful With Calendered Fleece and Wool Linings

Fleece and wool linings used in overshoes, arctics and gaiters, have always been a problem to handle in footwear manufacturing. The heavily napped surface has a tendency to stick to the coated surface of the next ply. Various ways have been tried to overcome this trouble; among them, dusting with talc at the calender or in plying up, and using a very dry compound thoroughly chilled by the use of cooling rolls at the calender. Both methods are unsatisfactory as they require extra labor in the making department, cleaning off talc with thin cement and freshening up the coated side to bring back the desired tackiness. The talc also comes off on the napped side giving the finished shoe a streaked appearance.

The new separator paper solved the problem when used as a liner at the calender, the fleece having been rolled up in the paper of sufficient width to cover the stock. When ready to cut, the stock was unrolled, paper and all, cut and sent to the maker. Thus the shoe maker received his linings with the gum as fresh and tacky as when it was calendered, each lining protected and sealed with a piece of paper which he removed with hardly an effort. The work of cementing, cleaning, and freshening was eliminated.

The following savings were noted from the above experiment: (1) Expense of original equipment of cloth for liners, with labor saving and handling expense enumerated on friction; (2) Expense of dusting with talc, entailing dirt and health hazards (if all use of dusting materials in rubber factories could be eliminated, the result in improvement of product and morale would be tremendous); (3) Most gaiters are made individually, the cleaning and cementing operations are ordinarily performed by the maker. With these operations eliminated a greater production per maker may be obtained; (4) Loose linings are a common fault in overshoes on account of poor adhesion. By preserving the tack of the lining, this hazard is materially reduced and a better product assured.

Recommended for Piping Stocks

One of the most important parts of the tennis shoe is a strip which binds the upper and outsole, and withstands the scuffing and sidewear to which these shoes are subjected. It is known as "piping," and is made of heavy sheeting, frictioned two sides, calender coated two sides, and then cut on the bias. It is highly essential that these strips retain their tack especially on the types of shoes where the outsole lasts over onto the piping. If the piping is the least dry at this point, the outsole will loosen up and eventually come off the shoe entirely.

Aside from its serviceability, piping must present a smooth appearance free from cloth wrapper marks. This can be accomplished by running single ply and placing on frames for cutting, one piece at a time. This is very expensive and wasteful of stock. It can be plied up by dusting, but this requires refreshening and cementing by the maker, and does not eliminate the objectionable wrapper markings.

Here again the new paper filled the requirement exactly. On the second coating, the compound was used which was to appear on

the outside of the shoe, and the stock run into the paper used as a liner at the calender. After storage, it was doubled off for cutting, 6 to 8 ply, and cut by knife and bar on the bias. The maker received his strip in cuts of 3 to 4 pair, making it necessary to remove the paper only as each strip was needed.

This accomplished: (1) Savings in cutting labor (6 to 8 ply against 1); (2) Elimination of dust and cloth marks; (3) Cloth liner maintenance and expense.

Other Examples of Efficiency

Separation of plies in footwear is just as serious as it is in tires. It is apt to be prevalent in heavy types of shoes such as pacs, boots, and heavy gaiters which are subjected to farm and industrial wear. To insure greater adhesion, some manufacturers have tried skim coating various parts. This improves the quality without doubt, but it has always been a problem to handle skim coated cut parts economically on account of their extreme tackiness. Running this kind of stock into the new paper at the calender and cutting as usual, proved to be the most economical and practical method.

Competitive conditions in footwear in the past few years have caused the development of cheaper lines of merchandise for outlet in chain stores. These are volume orders, but they must be run through the factory economically or the profit soon disappears. One type of gum shoe or rubber sold in this class is the shoe made of zephyr stock, i. e., the upper coated on the stockinette lining at the calender. Footholds made from this type of material are very popular just now. The adoption of the new separator paper made an effective saving here. As in the other instances, the paper was used at the calender in place of the cloth liner. The objectionable cloth marks and dust were eliminated. Cheaper cutting costs were realized by plying up the stock the same as ordinary stockinette lining.

Many footwear factories make a practice of running a ply of light sheeting on the top ply of all tables of stock. It serves to eliminate block dust, dry stock, wrinkling, and facilitates the handling of the stock before and after cutting. New separator paper was substituted for the sheeting, and a direct saving realized.

Separator papers now in use in the footwear trade are of great variety. They include plain hard finished krafts, glazed, oiled, and waxed papers. The best of them do not work well under all conditions. If the cut parts are subjected to any weight or the stock is fairly fresh when plied up, the stock will stick to the paper. On boot form work especially, this sticking delays operators and seconds result due to blistering caused by tiny particles of paper not being removed. With the use of the new separator paper the number of operators used for "picking" friction parts was greatly reduced, and the paper came clean from the stock.

Without doubt, there are other places where paper of this type can be used to advantage. It will be noted that wherever the paper has replaced cloth liners they are plain cloth liners and not processed liners. This is because in footwear, stocks do not have the rubber content or weight of tire stocks and do not require the non-sticking liner. In fact, the processed paper seems to have come along as a logical development from the processed cloth liner, and new and profitable uses in other rubber lines are bound to be evolved in the future from it.

Single Texture Finishes

Combination Stocks—Starch Finishes—Raincoat Varnishes—Importance of the Cure

By S. G. Byam

THE proper finish of single textures is unquestionably the most essential characteristic of this class of proofing, and depends on the coating specification or arrangement of stocks applied, on the quality and construction of the rubber stocks themselves, on the starch or other surfacing material used, and on the type of cure. For this reason any discussion of finish must involve careful consideration of these four subjects. Taking the inherent quality of the single textures for granted, a good finish does more to make satisfactory merchandise than anything else. Good finish means good appearance.

Single texture proofings are used for a variety of purposes, though the name usually applies only to raincoating material. However, in the proofing sense, single texture may be any fabric with a rubber coating on one side only, such as single coated hospital sheetings, spread silks and nainsooks for the sanitary trade, coated percales and cretonnes, shoe cover cloths, and the raincoat sateens, cambrics, bombazines, etc. These products are finished in several ways, some with a dull smooth surface, others with the "electric," luster finish, and still others to have a glossy or semi-gloss appearance.

Combination Proofing Stocks

The coatings on rubberized fabrics are not always made up of a single stock throughout, but often of a combination of stocks, not only for reasons of cost but because the proper adjustment of quality and ultimate finish demand it. From the cost standpoint a medium quality coating can be built up by using a combination of low priced and high priced stocks quite as well as with a single medium priced stock. Why this is better from a quality standpoint is another matter. Often the anchor coating, or first coat spread on the fabric, needs to be particularly high grade in order to produce the adhesion necessary to prevent the balance of the coating from peeling or picking off when finished. This is true of the low and medium grades more than the higher ones. As the coating progresses stocks with less rubber are used to give weight and color, and then the topping stock, usually of excellent quality, is applied to furnish the base for the desired finish. Thus the quality of spread goods is controlled to a close degree, and very good coatings containing a minimum of rubber are produced.

Another reason for this combination stock method lies in the fact that some fabrics, such as percales and cretonnes, are printed with large, highly colored designs, and must be spread with gray, white or other light colored coatings. In these cases any one stock used throughout would by no means completely cover and blot out the design, unless it was loaded with pigment at the expense of quality, or applied so heavily that a very thick coating resulted. As either way would be impracticable, the combination of stocks of various colors is the only method. In such cases the bottom or anchor coat is selected for quality and color to match that of the predominating fabric design. After spreading on several coats of such a colored stock, the design is well blotted out, and the balance of the coating can be applied in the color desired. It is sometimes necessary to apply a black stock over a strong red design before the goods can be finished in white or gray. In such ways the combination of stocks is vital to the finish of the goods.

The effect on the finish of the quality of the stock is shown in the feel and appearance of the goods. The presence of a substantial amount of oil substitute or factice in the compound

gives a velvet smoothness unequalled by any other ingredient. This is particularly apparent when the material has been cured by the liquor "acid" cure, which leaves no starch visible on the surface. A stock containing from 15 to 20 per cent of rubber and an equal amount of good, white factice will act and feel equivalent to a 30 per cent rubber stock without factice. If an exceptionally dry and perhaps "boardy" surface is desired, the topping stock must contain mineral fillers and less factice.

Starch Finishes

A soft stock might be supposed to hold so much extra starch on the surface that an exceptionally high luster finish would result. This seems contrary to fact, as a soft and even tacky stock only absorbs the extra starch leaving the surface dull, with very little luster when the bright potato starch has been applied. This starch seems to show best on a hard, dry surface, and the stock must be compounded accordingly. Of course, the luster finish shows best over black or dark colored stocks. It is apparent on light colored goods only when the light strikes across the surface and is reflected by the shining facets of the starch particles.

While the "electric" finish of potato starch and the velvet dull finish of corn starch are the most favored for single texture proofings, there are several others that are most popular for certain purposes. Starches, such as sago and tapioca, produce desirable effects because of their soft, smooth luster, which is a composite of the effect from corn and potato starches. Special care is needed in selecting the starches to produce these desirable effects. Naturally, moisture must be present only to a minimum extent and bone dry material is preferred. Imported potato flour has the fine whiteness needed for the smooth electric finish, but can rarely compare in brilliance of particles with coarse, unbolted, yellowish, Maine potato starch. Starches, dyed to the color of the coating are sometimes used for special effects but rarely does the result justify the cost.

Rubber Slicker Finish

During the raincoat season last year, when yellow slickers were in favor, the proofer was required to produce a finish for a rubber duplicate of the oil coating. This was accomplished in a fairly satisfactory way by dusting the high quality coating with fine, ground mica and following with the wet "acid" cure. This process gave the glinting appearance and the soft "draggy" feeling of oil skin. Incidentally this rubber slicker cloth has a permanent flexibility, unaffected by heat and cold, that no real oil slicker can ever match.

Raincoat Varnishes

The smooth, shiny surface of the well known black raincoat is obtained by covering the surface with varnish which is usually made by the saponification of shellac with borax and ammonia water, and known as "water varnish." This solution is easily applied hot at the calender or spreader and dries readily, leaving a smooth, glossy film over the rubber. It may be, if necessary, colored with dyes or bodied with mineral fillers or lampblack to modify the degree of gloss. Shellac in alcohol solution is also used in a similar manner and is preferred to water varnish if extremely fast drying is necessary, but only for this reason, as its high cost and tendency to crack and check are serious drawbacks.

Where a transparent or extremely light colored varnish is needed, an alkaline solution of casein, containing glycerine to reduce brittleness, can be used to advantage. All varnishes mentioned can be modified for special effects with various waxes and gums. Carnauba, montan and Japan wax can be blended with shellac solutions to increase luster and reduce tack. The varnished surface is particularly used on the "leatherette" raincoat, a fairly heavy leather colored calender coating of good quality. The material is made up with the shiny rubber side out, so that the surface finish is especially important.

Importance of Cure

The foregoing discussion of single texture finishes has only mentioned the important matter of cure which does much to determine the finish. For instance, the luster or electric finish can not be properly obtained with the dry heat cure, because the potato starch is absorbed into the heat softened rubber coating during the cure. On the other hand, the heat cure will dry and harden most of the varnished finishes and will cause a desirable absorption of corn starch in the case of dull finished goods like "gas-mask" cloth. This material is similar to leatherette coating, except that it is made with a dull, smooth-as-velvet finish. The dry heat cure requires a careful balance of sulphur and accelerator in the stock and exacting adjustment of temperature in the heater to cure properly, thus preventing the destructive softening of over-cure or the damaging "bloom" resulting from under-cure. The operation of dry heat cures is unquestionably the most inexact of all methods of hot vulcanization, chiefly because of the difficulty in producing an absolutely even and controllable temperature in all parts of the heater.

The sulphur chloride cures, both in vapor and liquor forms, are closely allied with luster and dull finishes. Usually, the luster finish includes the vapor cure without question, though cases are known where an application of sulphur chloride solution follows the vapor cure. Doubtless this additional treatment hardens the surface a little more than usual and keeps the starch more firmly imbedded in the rubber than otherwise.

The wet or liquor cure is of especial value for single textures where long aging without surface hardening and clear smooth surfaces are desired. A treatment of bromine solution over an unstarched, acid-cured single texture produces an unusual effect that will some day become very popular. The surface, thus treated, has a dry, leathery feeling which is unlike any starched or varnished surface. The color of the coating, not being obscured in the least by starch, stands out clearly and brilliantly, but the coating itself must be spread to perfection as defects, if present, will stand forth for all to see. This finish seems to age in an entirely satisfactory manner because the oxidation, induced by the brominating, forms a surface skin that protects the coating from later deterioration.

Methods of finishing single textures, as discussed above, are common practice among proofers and have been in use for years. Special effects are often obtained by combining these methods or parts of them, and are soon adopted for general use throughout the trade. Proofers are constantly endeavoring to produce new finishes which often attract the popular fancy and make good business. In the finish of single texture lies its beauty; a beauty, in this case, that is truly skin deep.

CRUDE RUBBER IMPORTS AND CONSUMPTION IN TIRES

The cumulative total of American imports of crude rubber during the first seven months of 1925 has reached 209,327 long tons, an increase of 15.2 per cent over the corresponding period of 1924, when the total was 181,727 long tons. In like manner the consumption in 1925 of crude rubber by tire manufacturers was estimated for the seven months specified at approximately 148,489 long tons, a gain of 35.9 per cent over the seven months period of 1924 when the amount consumed was a little more than 109,253 long tons.

PURCHASES BY THE UNITED KINGDOM OF AMERICAN-MADE pneumatic casings numbered in July 19,706, value $203,822. Argentina followed with 11,403 casings, value $108,777; Denmark taking 11,202, value $95,850; Mexico, 7,836, value $92,780; and Australia, 5,215, value $71,964. The following countries in August increased their purchases: United Kingdom, 23,249 casings, value $283,160; Argentina, 14,423, value $171,889; Denmark, 12,919, value $112,771; and Australia, 5,807, value $83,055.

What the Rubber Chemists Are Doing

Twenty-five Years of Rubber Chemistry[1]

By William C. Geer

OUR knowledge of the chemistry of rubber is mainly derived from the researches of the last twenty-five years. Rubber has been a difficult substance to examine from the standpoint of the organic chemist, for it is colloidal; molecular weight measurements are of no account; it has no constant melting point, and decomposes when distilled. It was known for many years that it reacted with the halogens, oxygen, sulphur, and nitric acid. It had been chlorinated and an impure bromide was known. The addition of sulphur refers back to the important date of 1839, when Charles Goodyear discovered that sulphur affected rubber, making it less sensitive to heat and cold; but until the work of Weber, in 1902, little was definitely postulated regarding the real action of sulphur upon rubber. The chemistry of these reactions is now more clear.

The study of the substitution products formed with the rubber hydrocarbon by bromine, chlorine, etc., and the work of Harries on the action of ozone has finally developed a more complete theory of the structure of the rubber hydrocarbon, and proved by refractive index measurements. Chemists now believe that rubber consists of many C_5H_8 groups with only one double bond in each group. These polymerized groups are aggregated into larger masses, which show a diminished chemical activity. The structural formula may thus be written $(-CH_2-C(CH_3)=CH-CH_2-)_x$; but whether it is a long chain or a large ring is not known. The future has to do with the x; for precisely the way in which these groups of carbon and hydrogen are united to form the aggregates, and the effect on physical properties of the size of these aggregates, is one of the unsolved chemical problems in this intricate phase of organic chemistry.

Stimulated by the high price of natural rubber in 1910, chemists succeeded finally in developing a rubbery substance which upon analysis proved to be a true rubber. These syntheses were successful from a chemical standpoint, but they were not so in practice. The products made from it had neither the life nor the strength possessed by those made from natural rubber.

A recent most interesting development of a theoretical nature has been the preparation of crystalline rubber. Certain European chemists have recently found it possible to obtain actual crystals of rubber hydrocarbon from certain highly purified solutions. We have conceived of rubber as a colloidal plastic; and yet now the chemist has changed our colloid into crystals. The crystals are quite different from rubber as we know it. They are very sensitive to oxidation, and possess relatively little elasticity.

Vulcanization with Sulphur

From the practical standpoint, the vulcanization of rubber is the field that has commanded the chief interest. Most of our commercial rubber products demand the interaction of rubber and sulphur, under the influence of temperature and time. These are the factors discovered by Goodyear in 1839, and they persist. Down to 1900 they were still much in the form left them by Goodyear. But from 1900 on, the energetic work of a number of chemists has led to the improvement, not only in our knowledge of what is vulcanization, but also in changes in the methods by which vulcanization can be carried out.

Vulcanization is concerned not only with sulphur and its effect on the rubber hydrocarbon, but also with the substance sulphur monochloride, the action of which was discovered in 1846 by Parkes in Great Britain. Vulcanization is difficult of explanation because even with a given quantity of sulphur we are disturbed in our theories by variations in the finished product.

We can, however, in the light of our knowledge undertake a few positive statements. There is, during vulcanization, a chemical reaction between rubber and sulphur, and the rubber combines with some sulphur. We know that time and temperature for a given mixing are factors; we know that when a mixture of rubber and sulphur is heated, the rubber dissolves the sulphur and chemical action follows; and during this heating process we believe that the rubber aggregates are being broken down by the action of heat, so that the longer the time of heating, the relatively weaker is the product. These two actions go on simultaneously: the addition of sulphur and the breaking down of the rubber aggregate. Thus, in the simplest and shortest explanation that can be made, our theories lead us to believe that, whatever other effect may occur, there is at least a definite chemical action taking place during vulcanization, with heat and sulphur playing the major parts.

Accelerators

Next to the discovery of the effect of sulphur, the greatest practical advancement from chemical work has come from the use of those substances that speed the time and lower the temperature at which sulphur is added to rubber. These substances we term "accelerators of vulcanization." The use of such inorganic powders as white lead, litharge, and so on, was known to Goodyear and his contemporaries, but down to 1906 essentially nothing was done in the use of organic substances.

One of our American chemists found in 1906 that aniline oil and other nitrogenous organic chemicals, when added to mixtures of rubber and sulphur, shortened the time of vulcanization, and gave to the finished mixture higher physical values. Among the inorganic accelerators, the chief ones of value are litharge, magnesium oxide, and zinc oxide, the latter being in point of fact used as a promoter of the organic accelerator. A large number of accelerators is used, the effect of which upon the temperature of vulcanization is so varied that today it is possible to add sulphur to rubber and vulcanize it at temperatures ranging from slightly above that of the room up to temperatures which radically affect the aggregation of the rubber hydrocarbon.

How Accelerators Function

The most generally accepted theory of how vulcanization accelerators function is the hydrogen sulphide-polysulphide theory. According to this theory when amines are used as accelerators, hydrogen sulphide is formed and adds to itself sulphur to form a polysulphide in a manner analogous to the formation of ammonium sulphide. This polysulphide sulphur easily splits off a very active form of sulphur, which then quickly attaches itself to the rubber. The accelerator therefore serves to activate the quantity of sulphur in contact with rubber.

Our rubber factories are dominated by accelerators, an achievement brought about during the last twenty-five years. The manufacturer on his part "turns over" his plant more rapidly, needs a smaller investment in order to meet the demands of the consumer of tires and other rubber goods than would have been required had there been none of this chemical work. The consumer, likewise, has profited by increased values. Part, although not all, of the well-recognized additional tire service is due to

[1] Abstract from *Industrial and Engineering Chemistry*, October, 1925. Paper presented before the Division of Industrial and Engineering Chemistry at the 69th Meeting of the American Chemical Society, Baltimore, Maryland, April 6 to 10, 1925.

the qualities made possible by these organic accelerators during rubber vulcanization.

In connection with vulcanization it has been found that organic acids are present in rubber. These acids have a definite influence on rubber vulcanization, since without their presence metallic oxides would fail as accelerators. Certain grades of rubber seem to be deficient in these acids; and this deficient rubber may be improved by the addition of organic acids in the presence of metallic oxides.

Rubber Latex

Rubber latex is one of the most interesting of the colloidal suspensions. The globules of the rubber hydrocarbon are of various sizes and shapes—globular, pear-shaped, etc. One recent investigator succeeded in pricking some of these particles, and came to the conclusion that each particle is surrounded by an adsorbed layer of nonrubber substance, and each particle consists of two different rubber phases; one, the outer layer, which is scarcely soluble in benzene and of very high viscosity, and an inside fluid phase of low viscosity and soluble in benzene. It is generally agreed that coagulation results in a massing of the particles, and that solid, dry, crude rubber consists of particles each surrounded by some proportion of the protective colloid originally in the latex.

During the past two years particularly, there has been considerable agitation in the industrial field over the application of latex in the rubber industry. From the practical manufacturing standpoint, none of the new processes in the direct application of latex has extended into the industry in any large way. Many of the scientists and some of the technologists seem to believe that the uses of latex industrially have but just begun, and do not represent a mere temporary enthusiasm.

Colloid Chemistry of Rubber Mixtures

In the old days dry powders were added to soft rubber mixtures for the sake of making them stiffer than was possible with sulphur alone, and for cheapening purposes. They were called "fillers." Today the rubber mixture is considered by the rubber chemist as a disperse system of a very particular character, and each of these dry powders in any such system is used to obtain defined values. In studies that have been published, two characteristics of great value are shown in such systems. The fineness of subdivision, or "particle size," is of prime importance: for particle size affects not only the property of stiffness of the dispersion but also such important characteristics as resistance to abrasion, tensile strength, the modulus of elasticity, and so on. Particle size alone, however, does not account for the valuable characteristics of some of these more modernly considered pigments such as carbon black and zinc oxide; and we today are looking toward the ultimate solution of the question in the evaluation in terms of physical constants of the interfacial tension between the rubber and the surface of these particles.

There is doubtless still another important characteristic in the shape of the particles. It may be a question of total surface which today is not possible of evaluation with our present microscopic methods; but it is true that certain carbon blacks—for instance, the particle size of which is in the order of certain other blacks—yield, when vulcanized in rubber, softer mixtures; yet others of nearly equally fine subdivision yield stiffer mixtures. So we must consider not only particle size but also the unmeasured interfacial tension constants and the degree of plasticity shown by given volumes of given substances.

Modern Compounding

There is a science as well as an art in modern rubber compounding, and while this phase of rubber chemistry is passed over rapidly, this is done largely, not from lack of exact data, for in point of fact it is the rubber mixture that constitutes the rubber business, but from the lack of coordinated conclusions. Mixtures are made to have different properties for each of many thousand different uses. The future rather than the past holds the key to the evaluation and predetermination of characteristics to be given to finished mixtures because of known physical and chemical characteristics possessed by substances to be dispersed into the rubber phase.

The study of aging has thrown more light upon the precise chemical mechanism of it. It is generally conceded at the present day that aging has to do with oxidation. Whether it is direct oxidation of the rubber or whether it is an oxidation of the free sulphur, and from those oxidation products a catalytic action is developed, chemists are not wholly agreed. To prevent this oxidation a number of substances have been used. These as a rule have been nonaccelerators of vulcanization, and serve to retard the action of oxygen. We are not, however, quite ready to state whether they serve as buffers to take oxygen instead of the rubber taking it, or whether they serve definitely to reduce the ability of rubber to add oxygen. There is still much opportunity for study in the question of aging. But modern rubber mixtures now last over a reasonable period of years.

Vulcanization Without Sulphur

Since sulphur seemed to be *the* substance which gave to rubber improved properties by vulcanization, it is natural that many chemists should have studied the problem of vulcanization *without* sulphur. Several substances, notably certain peroxides and certain aromatic nitro compounds, have been found definitely to bring about a stiffening, an increase in strength, and the other physical changes that we call results of vulcanization. None of these, however, so far as the published literature goes, are known to give properties that equal the products obtained from the use of sulphur. They are, therefore, largely only of scientific interest.

The Fibrous Structure of Stretched Rubber[1]

Doctor Lothar Hock, of the University of Giessen, presented before the Deutsche Bunsengesellschaft May 28 of this year, his theory in explanation of the Joule effect based on experimental evidence in connection with the fibrous structure of stretched rubber.

If highly stretched rubber is subjected to the cooling action of cold air, cold water or a freezing mixture, the rubber sets, "crystallizes" or congeals in the stretched condition and does not undergo retraction until the temperature is allowed to rise to a definite point. The temperature at which the rubber returns to its original unstretched condition is dependent upon the extent to which it has been stretched and the degree of cooling in the stretched condition. From his experiments Dr. Hock concludes that stretched rubber must possess a fibrous structure. He suggests that on stretching, the rubber molecules range themselves so that they all point one way, and that the cohesion forces involved during this molecular rearrangement are responsible for the thermal effects investigated by Joule. This cohesion force is also known as the van der Waal force, and the effect of opposing its action is the absorption of heat. On stretching rubber such opposition is offered to the cohesive force between the molecular complexes. As the temperature is raised, however, the kinetic energy accorded the molecules increases, as explained by the kinetic theory and the relative influence of the cohesive force in determining the state of the rubber decreases.

Dr. Hock summarizes his theory as follows: Stretching causes a rod-like packing and regular orientation of the molecular complexes of rubber. The system becomes stabilized by the evolution of heat due to the more powerful forces of cohesion between the long sides of the neighboring molecules. So long as the temperature of the stretched rubber is kept low enough, the motion be-

[1] *Gummi-Zeitung* 39, 1740-1742, 1925.

tween the molecules that is due to the effect of heat is kept so low that its gross dynamic tendency cannot overcome the static tendency induced by the powerful cohesive forces brought to play between the orientated molecules under the act of stretching. Therefore at these low temperatures, the rubber does not, when the stretching force is removed, lose its fibrous structure and contract.

A sheet of strip unvulcanized rubber about 2 c.m. broad is stretched between two clips as far as it will go and then frozen

TOP.—STRETCHED RUBBER BROKEN INTO FIBERS. BOTTOM. UNSTRETCHED RUBBER BROKEN INTO FRAGMENTS.

to maintain its expanded condition when the source of tension is removed. Small pieces are then cut from the most constricted part of the strip, dried carefully and frozen hard by immersion in liquid air. If these frozen pieces are hammered upon an anvil the rubber will split into long fibrous fragments as pictured in the upper part of the accompanying illustration. If this experiment is repeated with unstretched rubber hammering the frozen material simply breaks it into pieces with no semblance of fibrous structure, as seen in the lower part of the illustration.

Chemical Patents

The United States

RUBBER COMPOSITION. A resilient composition comprising rubber, zapote gum, oxide of zinc, metallic wool and sulphur.—Warren S. Gaunt, Kansas City, Missouri. United States patent No. 1,553,438.

PLASTIC CONTAINING RUBBER. A new compound the product of the reaction of rubber, an aldehyde, a phenol and a halgen.—John McGavack, Elmhurst, N. Y., assignor to Revere Rubber Co., Chelsea. United States patent No. 1,555,131.

RUBBER ANTI-OXIDANT. A process for retarding the deterioration of rubber due to oxid tion which comprises treating vulcanized rubber with an agent unable to activate oxygen but adapted to absorb appreciable amounts of activated oxygen.—Sidney Cadwell, Leonia, New Jersey, assignor to The Naugatuck Chemical Co., Naugatuck, Connecticut. United States patent No. 1,556,415.

The Dominion of Canada

RUBBER ANTI-OXIDANT. A process for retarding the deterioration of rubber due to oxidation which comprises treating vulcanized rubber with alternate fluids to form a substance unable to activate oxygen but adapted to absorb appreciable amounts of activated oxygen. Such a substance is an aliphatic aldehyde-aromatic amine condensation product.—The Canadian Rubber Co., Limited, Montreal, assignee of Sidney M. Cadwell, Leonia, New Jersey. Canadian patent No. 253,487.

TREATMENT OF RUBBER. A process for treating the deterioration through oxidation of rubber which comprises combining with rubber a vulcanizing agent, a powerful accelerator adapted to cause vulcanization at temperatures below the usual hot vulcanization temperature, sulphur and acetaldehyde-aniline acid condensate and vulcanizing the rubber.—The Canadian Rubber Co., Limited, Montreal, assignee of Sidney M. Cadwell, Leonia, New Jersey. Canadian patent No. 253,488.

CRUDE RUBBER. A spray desiccation process for producing crude rubber from latex, which consists in subjecting the same during the spraying operation to heat sufficient to render the major portion of its protein constituents insoluble in water.—The Canadian Consolidated Rubber Co., Limited, Montreal, assignee of Russell Hopkinson, Elmhurst, New York, Canadian patent No. 254,153.

RUBBER COATED PAPER. A coated paper consisting of paper coated with a mixture containing rubber latex, starch, and a finely divided clay, the proportion of starch and rubber solids being equal to about 12 per cent of the weight of clay present.—The Canadian Consolidated Rubber Co., Limited, assignee of Gustavus J. Esselin, Jr., of Swampscott, Massachusetts, and Reed P. Rose, Jackson Heights, New York. Canadian patent No. 254,154.

RUBBER VULCANIZATION. A process for accelerating the vulcanization of rubber which comprises in approximately the proportions named the following, 100 parts rubber; 1 part or more of zinc oxide; 2 parts or more of sulphur; 0.5 or more of the reaction product of diphenyl-guanidine and 1 mercapto-benzo-thiazole and heating the combination at 20 or more pounds per square inch steam pressure until vulcanized.—The Dovan Chemical Co., New York assignee of Morris L. Weiss, Newark, New Jersey. Canadian patent No. 254,167.

METHOD OF VULCANIZING. Admixing caoutchouc and a vulcanizing agent with a basic lead salt of mercapto-benzo-thiazole and vulcanizing. —The Goodyear Tire & Rubber Co., assignee of L. B. Sebrell and C. W. Bedford, all of Akron, Ohio. Canadian patent No. 254,175.

PRODUCT OF VULCANIZING. A vulcanized caoutchouc product formed by the reaction of caoutchouc, a vulcanizing agent, 2-6-dimercapto-3-5-diphenyl-4-oxypentathiophene, and litharge.—The Goodyear Tire & Rubber Co., assignee of L. B. Sebrell and C. W. Bedford, all of Akron, Ohio. Canadian patent No. 254,176.

The United Kingdom

POLYMERIZED STYROLENE. Styrolene and its homologs are polymerized by heating to different temperatures and for different lengths of time to form three series of metastyrolenes. The products are tough, transparent and colorless, and can be cut with a knife. Dyes or pigments may be added. Organic peroxides, calcium chloride, nitro compounds and quinones are reagents which accelerate or retard polymerization.—Naugatuck Chemical Co., Naugatuck, Connecticut, assignees of I. Ostromislensky, New York, N. Y. British patent No. 236,891.

Germany

419,658 (April, 6, 1923). Method of making an evaporated product, from latex, soluble in water. Mervyn Stanley Stutchbury, London; represented by: Dr. Carl Bohn v. Barnegg, Frankfurt-am-Main.

MEETING OF RUBBER DIVISION A. C. S.

A joint meeting of the Rubber Division of the American Chemical Society and the Akron Section will be held in Akron, Ohio, February 22 and 23, 1926.

John M. Bierer, chairman of the Rubber Division, has sent to members the text of several specific decisions made by the Executive Committee at its meeting September 28 in New York. These relate to the preparation of papers and abstracts.

The Crude Rubber Committee will discontinue its activities after publishing a comprehensive account of its work and reports in the November, 1925, issue of *Industrial and Engineering Chemistry*.

The new committee known as the Raw Rubber Specification Committee, comprises the following members: C. W. Sanderson, Fisk Rubber Co., Chairman; J. P. Coe, United States Rubber Co.; R. P. Dinsmore, Goodyear Tire & Rubber Co.; H. A. Hoffman, The B. F. Goodrich Co.; E. A. Van Valkenburgh, Ajax Tire & Rubber Co.

This committee will prepare tentative specifications for the purchase of crude rubber, and its first report will be presented at the Akron meeting.

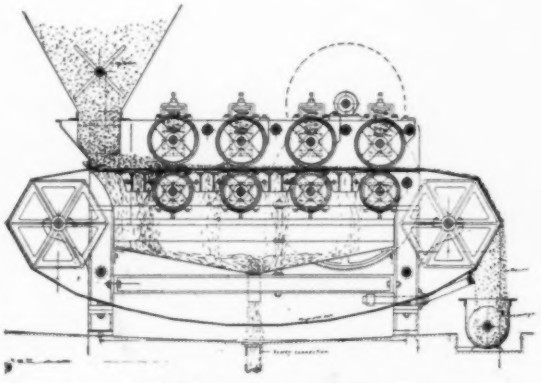
GRASSELERATOR 808

Grasselerator 808 is the trade name of a new vulcanization accelerator of special merit described as more active than ordinary accelerators and free from tendency to scorch the mixing under the usual storage and working conditions. It is an amber liquid, miscible with all the common rubber solvents and requires no special preparation or handling. It becomes active only above 230 degrees F and is efficient at 248 degrees F. Maximum results are obtained in the presence of zinc oxide of which 5 per cent on the rubber is recommended, although this amount may be reduced if lime or magnesia is used. Many important special advantages are offered by this accelerator, among these are mentioned the possibility of using unusually small amounts of sulphur; adaptability to non-blooming stocks; extremely high tensiles; relatively large loads at low elongation; ability to store unvulcanized stock, etc.

New Machines and Appliances

Reclaimed Rubber Dewatering Press

THE machine here illustrated adds greatly to the capacity of a drying plant for reclaimed rubber for example by reason of the fact that it will deliver continuously up to a ton of pressed ground material an hour containing residual moisture of less than 30 per cent, delivering the stock in fluffy conditions ready for rapid drying. The principle of operation is simple. A 24 or 36-inch wide sectional belt, made up of perforated steel plates, hinged together, is carried over a series of 4 supporting rollers.



Louisville Continuous Press Filter

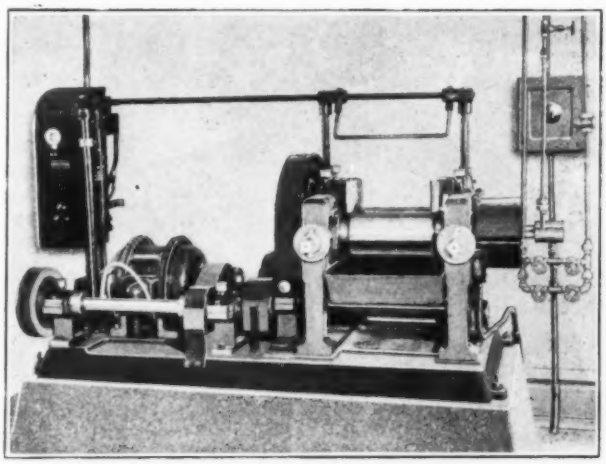
The belt sections are covered with a finely perforated copper sheet held in place by brass strips offering a continuous smooth surface to the pressure of the four upper rollers which form pairs with the lower ones. The pressure rollers are adjustable, and provided with springs for the relief of dangerous pressures due to the presence of foreign material on the belt. The distances between the successive pairs of rolls is gradually reduced so that the pressure is built up as the material becomes dry.

The water is not squeezed out of the material by direct pressure of the rolls, but their action is to operate on the solid matter which forms a layer adjacent to the belt, holding back the water which either overflows or filters through the mass as it passes from one pair of rolls to the next.—Louisville Drying Machinery Co., Louisville, Kentucky.

Laboratory Mixing Mill

One of the most useful and valued machines in a rubber laboratory is an experimental mixing mill. With such a machine the chemist and compounder is able to prepare research samples and new stocks independent of factory facilities and with the utmost economy of materials.

The illustration represents a motor driven laboratory mixing and sheeting mill with electric safety attachment. The design throughout is practically the same as that of standard production mills. The roll housings are of semi-steel and the rolls of chilled iron bored uniformly for water and steam circulation. The roll faces and journals are ground and polished. Each roll is equipped with leak-proof stuffing boxes and connection fitting. All gears are of open hearth steel, while the motor pinion is made of "Fibrox" for noiseless operation. The other structural details represent the best in design, materials and workmanship. The motor, mounted on the same heavy cast base plate as the mill, is 5-horsepower, 1,200 r.p.m. The quick acting safety stop is operated by pressing a rocker bar mounted over the mill by which the motor circuit is cut and the brake weight dropped, immediately stopping the rolls. The mill rolls are both 6 by 12 inches or one 6 and the other 8 inches in diameter as desired.



Banner Experimental Mixing Mill

Mills of similar design for washing and refining are mounted in connection with the mixing mill where such combinations are required.—The Banner Machine Co., Columbiana, Ohio.

Band Built Tire Machines

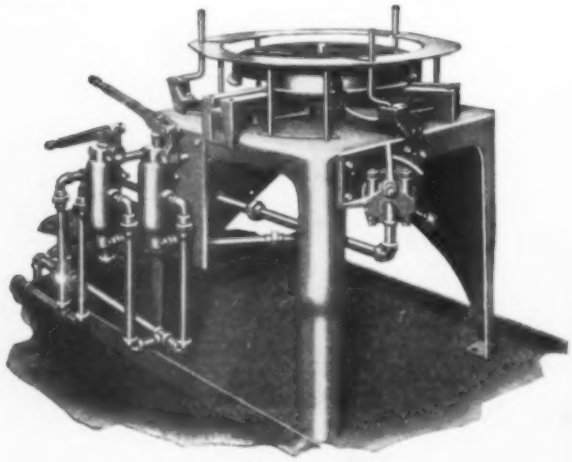
The advantages of band-built tires have increased their production and induced the development of machines to facilitate the economy of their manufacture. A pair of interesting machines adapted to handling tires of the band-built variety are here pictured.

Centrifugal Band Tire Shaper

The first shown is a centrifugal shaper which converts a flat built tire band into the form adapted to fit the curing mold. This it does by a gradual shaping motion under centrifugal force which prevents the unequal stresses and separation of plies frequently encountered in the use of purely mechanical shaping devices which break quickly and draw the cords at acute angles.

The air bag inserter is the machine by which the difficult hand labor of inserting an air bag into a tire casing for curing is entirely eliminated, thus materially lessening production costs. The inserter is usually operated in a group consisting of two tire shapers and inserter. When so arranged the capacity is about 110 tires per

hour with 2 operators. The inserter eliminates one of the hardest manual operations in tire making and performs the work speedily and economically.



Air Bag Inserting Machine

Both machines are well designed, ruggedly built and adapted for continuous work.—The Williams Foundry & Machine Co., Akron, Ohio.

Book-Type Tire Vulcanizing Mold

Unit tire vulcanizers or steam chambered tire molds, with their half portions hinged, have been perfected in various forms in recent years. In service they have demonstrated marked economy in curing cost by the facility and speed with which they can be operated. The original type of hinged mold vulcanizer was known as the watch-case type. A second form, the B T V book-type mold has now been introduced.

The importance of quick operation is evident when one realizes that in current practice a workman is allowed less than two minutes to open the mold, remove the cured tire and insert a new tire, without the slightest delay, otherwise many tires would be overcured. The quick lock idea embodied in the book-type vulcanizer was first applied to an individual tire curing unit about two years ago.

The details of construction of this steam jacketed mold are shown in Figure 1, where A is the front view, B the rear view and C a side view of the open mold. The halves are mounted on edge upon a substantial cast base. The opening half is hinged at the bottom and opens toward the floor so that the tire may be conveniently inserted and removed. A spring arrangement permits the operator to handle the swinging half of the mold easily and properly. Optional mechanical devices are substituted for this spring closing feature and include rack and pinion and hydraulic or air cylinders, as desired. A ring clamping and locking arrangement, actuated by gearing at the top edge of the mold, fastens it shut. A lever holds the tire in position in the swinging half of the mold when it is being closed and also serves to break the cured tire from the mold when opened. A lever operated eccentric device serves to break open the mold at completion of the curing operation. Air connection to the valve stem is effected by quick device of ball-type construction.

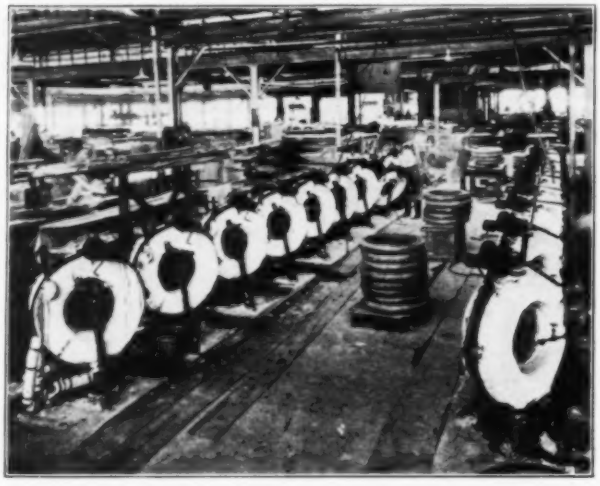


Fig. 2. Installation of Book-Type Vulcanizers

Where interchange of different sizes of steam-jacketed molds is required a book-type cradle is employed which permits such interchange in the cradle by changing only four bolts, and without breaking any of the packed steam joints.—De Mattia Brothers, Garfield, New Jersey.

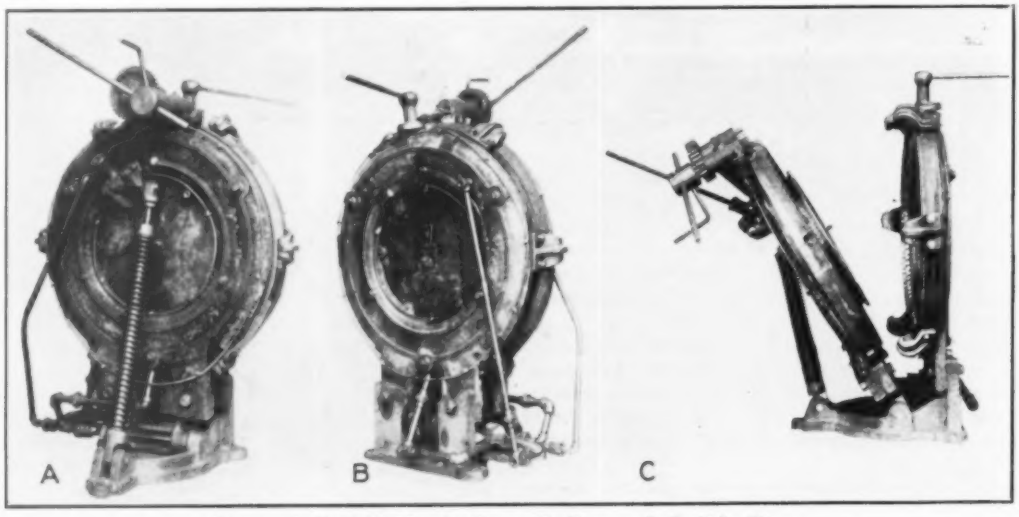


Fig. 1. B T V Mold. A—Front, B—Rear and C—Side Views

New Model Tire Paper Wrapping Machine

The new model paper wrapping machine here illustrated will wrap all size tires including 7.30 balloon with any standard paper desired. It occupies very little floor space and is equipped with individual motor. There is no clutch to get out of order and starting and stopping is always under foot control by the operator.

Terkelsen Model 1-G Wrapping Machine

The machine embodies several new features such as its gateless, forged steel shuttle, rotating on ball bearing disks which by means of a simple device are automatically kept in perfect adjustment at all times. Another novel feature is an auxiliary device contained within the machine which automatically applies an adhesive strip to the periphery of the tire. This mechanism relieves the operator from the necessity of attaching and severing the adhesive strip by hand and is a positive time saving feature.

The mechanism which controls the tension is so designed that the paper is wrapped around the tire with the same tension whether the roll of paper is large or small. This tension may be made so light that tissue paper can be wrapped successfully or so heavy as to break four inch wide burlap. This last test gives some idea of the power of the machine.—Terkelsen Machine Co., 326 A street, Boston, Massachusetts.

Watch Case Tire Vulcanizer

The illustration herewith represents an improved form of tire vulcanizer of the watch case type in which two molds are mounted back to back on the same pedestial. The movig halves of the molds swing open on hinges and are clamped in closed position against asbestos packing by means of an adjustable eccentric device. Compared with the usual tire vulcanizer, this apparatus represents lower initial cost, less labor, less steam consumption. It is tested to 200 pounds, requires no cooling water, and is quickly installed.—The Bridgwater Machine Co., Akron, Ohio.

Bridgwater Tire Vulcanizer

Machinery Patents

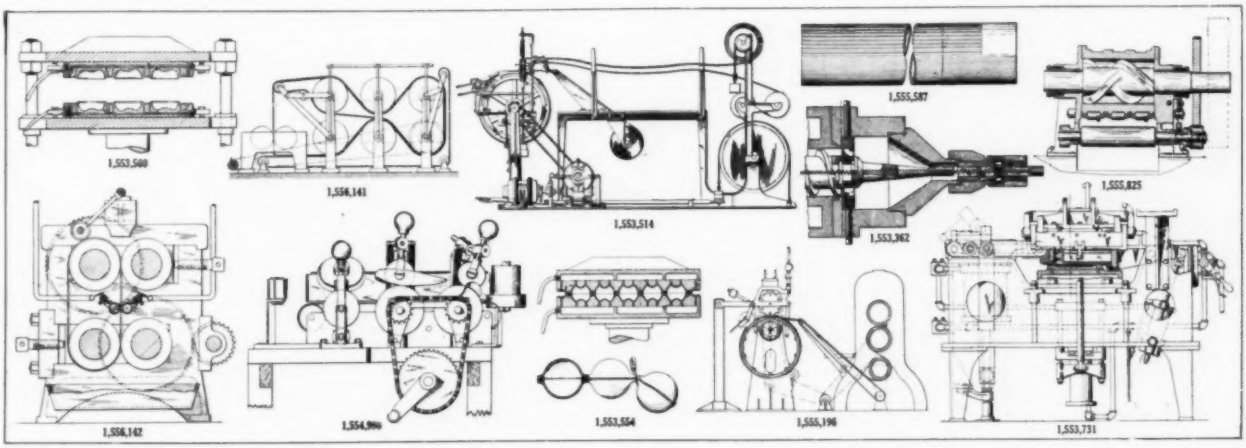
The United States

1,553,362 METHOD OF MAKING TIRES. This relates to an apparatus for forming solid cushion tires from rubber with a spirally coiled wire core imbedded at the center. The function of the spiral coil is to permit longitudinal elasticity and yieldability, and also to afford a means by which the ends of the tire may be conveniently secured together before placing it upon the rim of the wheel. The apparatus for forming the tire is essentially a tubing machine fitted with a special head and die for forming the rubber around the spiral coil fed through the screw of the machine and die from the rear.—R. B. Calcutt, Chicago, Illinois.

1,553,514 APPARATUS FOR MAKING TIRE BEADS. This invention provides means for the speedy and accurate construction of straight side tire beads of uniform size and provides for effecting a uniform tension upon all the strips comprising the bead as they are positioned relatively to each other. In operation a bias strip of rubberized fabric is drawn upward from a roll beneath the stand of the machine. This passes twice around the building drum and is followed by windings of flat rubber impregnated wire tape from a stock roll controlled by a band brake to regulate the tension with which the wire is applied on the building drum. The wire tape is covered with a winding of strip rubber from a stock roll at the rear of the machine. The structure thus formed is rotated and the edges of the fabric strip are next turned up and folded over the convolutions of wire tape and filler, while lateral and circumferential pressure is exerted against the folded structure to iron out the fabric around the bead. When thus formed the bead may be molded and vulcanized into the desired contour.—Harold A. Denmire, assignor to The General Tire & Rubber Co., both of Akron, Ohio.

1,553,554 METHOD OF MAKING HOLLOW ARTICLES. Hollow articles such as double neck bulbs are formed of sheet rubber in an inflating mold operated by vacuum connection. The bulb in each cavity being outwardly connected with the adiacent bulbs yet each bulb separated from the next by a rubber plug in the connecting necks. This permits a number of raw stock bulbs to be formed at the same time after which they are separated by a knife cut through the plugged necks and the biscuits so formed are vulcanized in curing molds.—Fred T. Roberts, Upper Montclair, New Jersey, assignor to Paramount Rubber Company Consolidated, Philadelphia, Pennsylvania.

1,553,560 MOLD FOR RUBBER ARTICLES. The arrangement of this mold for inflated rubber articles is such that any cavity block may be removed and readily replaced when desired. The mold is so arranged that the pneumatic passageways will not become clogged by the soapstone or



other materials used with the rubber sheets. The size of the suction chamber in the base of the mold is reduced rendering it more efficient, while simplifying and cheapening the construction.—James Schaefer, Yonkers, assignor to Paramount Rubber Consolidated, Tuckahoe, both in New York.

1,553,731 APPARATUS FOR MAKING BATTERY BOXES. This invention relates to methods and apparatus for making partitioned containers or battery boxes from plastic material such as vulcanizable rubber composition. An hydraulically operated mechanism is provided for assembling and pressing a multiple-celled container upon a set of mandrels adapted to mold the interior of its respective cells, so that the container subsequently, if desired, may be vulcanized without a mold, as in the open steam method, without weakness of the seams resulting.—Harry E. Waner, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,554,706 and 1,555,825 RUBBER MIXER. This machine provides for sheeting the rubber previous to its complete discharge from the machine. This obviates the necessity of a separate sheeting operation in another machine. This is an improvement over the common practice of discharging the batch from the mixer in lumps and then to transfer them to a separate mill for sheeting. Further, by converting the mass into thin sheets, allows air cooling of the stock and prevents scorching or vulcanizing. Thus the rubber is sheeted and cooled immediately on discharge from the mixing chamber.—David R. Bowen and Carl F. Schnuck, assignors to Farrel Foundry & Machine Co., all of Ansonia, Connecticut.

1,554,998 BEAD COVERING APPARATUS. This machine is designed to apply fabric strips smoothly and evenly to a tire bead core of endless form, the core being maintained in a horizontal plane. This result is secured by passage of the core and covering strip through a series of folding and presser rolls operated by hand power and chain belt connection.—Fred D. Fowler, assignor to Hood Rubber Co., both of Watertown, Massachusetts.

1,555,196 CUSHION TIRE BUILDING MACHINE. This apparatus is adapted to support and drive a hanging tire base whose inner periphery is obstructed by clamping means for holding the core sections of the tire in assembled relation. The sectional core structure is associated with the base. The tire-body or cushion is formed by winding strips of tire building material direct from the calender upon the base and core structure and subsequently withdrawing the core sections from the base leaving a cavity within the tire-body.—Walter B. Freeman, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,555,587 MANDREL FOR COMPRESSING INNER TUBES. An improved mandrel for producing compression ridges on one side of an inner tube corresponding to a series of corrugations on the surface of the mandrel. When the cored tube is reversed from the mandrel the corrugations are inside and the exterior of the tube presents a smooth surface.—Walter Kline, Chillicothe, assignor of one half to Flora Dickison, Cleveland, and one half to Lou A. Mark and Daniel F. Mark, Washington Court House, all in Ohio.

1,556,141 MASTICATING MILL. In this mill rubber after passing through the masticating rolls, is automatically cooled and returned for as many additional mastications as desired. The mechanism by which this action is effected comprises an endless conveyor operated in conjunction with an ordinary rubber mill. It carries the sheeted rubber from beneath the mill over a series of drums through which water is circulated discharging the cooled sheet over the mill for re-mastication.—Harry C. Young, Sutton, and Colin Macbeth, Four Oaks, both in England, assignors to Dunlop Tire & Rubber Co. of America, Buffalo, New York.

1,556,142 WASH MILL. This mechanism comprises two pairs of rolls, one above the other, through which a sheet of rubber is passed successively. The second pair of rolls pulls the sheet more rapidly than the first pair feeds it, so that the rubber will be placed under tension between the rolls. Against each side of the tensioned sheet sprays of water are directed to wash away the dirt, the removal of which is further effected by passage of the stretched sheet through a pair of light rolls and spring actuated scrapers which deflect the dirt from passage through the lower rolls. From below the front low roll the partly washed sheet is fed over the front upper roll by the pull of a weighted idler roll bearing on that roll.—Philip E. Young, Fair Haven, Massachusetts.

1,553,673 Side-wall rack and applicator. John W. Dirkson, Kent, and Lee E. Clough, Akron, assignors to The Mason Tire & Rubber Co., Kent, both in Ohio.

1,553,982 Repair air bags. Walter T. Carter, Los Angeles, California.

1,554,015 Tire mold. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,554,016 Tire mold and bag. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,554,017 Tire mold. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,554,018 Tire mold. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,554,168 Plating apparatus. Winthrop W. Benner, assignor to Firestone Tire & Rubber Co., both of Akron, Ohio.

1,554,599 Method and apparatus for making hollow rubber articles. Frederick H. Schavoir, Stamford, Connecticut.

1,554,655 Work support for wrapping machines. George W. Prouty, Boston, Massachusetts.

1,554,798 Tire-making machine. Harold A. Denmire, assignor to The General Tire & Rubber Co., both of Akron, Ohio.

1,554,871 Applying treads to tires. Webster L. Melvin, Morrisville, Pennsylvania, and John E. Champion, Trenton, New Jersey.

1,554,986 Mold. George W. Bulley, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,554,989 Heel mold. Leon B. Conant, Cambridge, Massachusetts.

1,555,092 Water-bottle and closure-plug assembling machine. Charles Wurtenberg, Union City, assignor to The Goodyear's Metallic Rubber Shoe Co., Naugatuck, both in Connecticut.

1,555,816 Method and machine for covering strip material. Robert R. Ambler and Paul R. Rohrbacher, both of Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y.

1,556,279 Tool for rolling of tire tubes. George W. Allen, Indio, California.

1,556,292 Vulcanizing stud for tube making. Melvon A. Marquette, assignor to The Fisk Rubber Co., both of Chicopee Falls, Massachusetts.

1,556,295 Device for expanding endless bands. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

Reissues

16,169 Slitting and rewinding machine. James A. Cameron and Gustaf Birger Birch, assignors to Cameron Machine Co., all of Brooklyn, New York.

The Dominion of Canada

253,425 Apparatus for making rubber tubes with tapered ends. Laurits A. Laursen, Eau Claire, Wisconsin, U. S. A.

253,426 Tire mold. Laurits A. Laursen, Eau Claire, Wisconsin, U. S. A.

253,486 Blank cutting machine. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Roland Gaines Anderson, Morris Cove, Connecticut, U. S. A.

253,742 Cord tire making machine. The Dickinson Cord Tire Corporation, Delaware, assignee of Frederick S. Dickinson, New York, N. Y., both in U. S. A.

254,173 Method and apparatus for shaping articles of plastic materials. The B. F. Goodrich Co., New York, N. Y., assignee of Frank James MacDonald, Ellet, Ohio, both in U. S. A.

254,225 Rubber molding apparatus. John Fuller Allen, J. Allison Himrod and Edward E. Allen, all of Erie, Pennsylvania, U. S. A.

The United Kingdom

236,665 Rerubbering tire covers. A. Eymael and M. Dall, Este, 57 Rue Adolphe Lavalee, Brussels.

236,762 Molding tires. J. C. Paynter, 15th street, Philadelphia, Pennsylvania, U. S. A.

237,138 Feeding and arranging annular rubber articles. D. E. Hennessy, 114 Texas avenue, Milwaukee, Wisconsin, U. S. A.

237,139 Feeding and grouping articles in predetermined arrangement. D. E. Hennessy, 114 Texas avenue, Milwaukee, Wisconsin, U. S. A.

237,808 Recovering materials from coated fabrics. R. Marie, 2 Allée du Moulin Joly, à Colombes, Seine, France.

Germany

919,896 (May 14, 1925). Device for attaching exchangeable rubber tread patches to heels of shoes. Fritz Hass, Herbartstrasse 5, Hannover-Linden and Carl Rathmann, Nikolaistrasse 45, Hannover.

920,942 (July 30, 1925). Forcing press for plastic materials. Deutsche Legrit G. m. b. H., Berlin.

920,972 (February 21, 1925). Device for molding hollow rubber bodies. Nordgummiwerke A.-G., Berlin.

921,461 (January 23, 1924). Hot vulcanization device. Hermann Franke, Schlossstrasse 85, Frankfurt-am-Main.

Process Patents

The United States

1,553,883 Repair patch. Hugh Henry Theis, Taylor, Texas.

1,555,202 Rubber boot legs. Charles M. Hannis, Hudson, Massachusetts.

1,555,214 Forming a bearing. Carl W. Johnson, Shaker Heights, assignor to The Cleveland Graphite Bronze Co., Cleveland, both in Ohio.

1,555,256 Vulcanizing rubber. Egidio Romani, assignor to Ernest Smith, both of Turin, Italy.

1,555,389 Rubber printing rolls. George M. Stevens, San Francisco, California.

1,556,422 Packing rings. George Christenson, North Plainfield, New Jersey, assignor to Johns-Manville, Inc., New York, N. Y.

The Dominion of Canada

254,151 Manufacture of rubberized paper. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Ernest Hopkinson, New York, N. Y., U. S. A.

254,152 Process for compounding and vulcanizing rubber and products obtained therefrom. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Sidney Marsh Caldwell, Leonia, New Jersey, and Omar Harrison Smith, New York, N. Y., both in U. S. A.

254,154 Coated paper. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Gustavus John Esselen, Jr., Swampscott, Massachusetts, and Reed Phillips Rose, Jackson Heights, New York, both in U. S. A.

The United Kingdom

236,624 Treating rubber latex. W. B. Westcott, 136 Federal street, Boston, Massachusetts, U. S. A.

236,633 Coagulating latex. H. W. Hammond, 1 Lake Road, Slave Island, Colombo, Ceylon.

236,897 Rubber articles. A. R. Van Der Mark, Weltevreden, and H. Kremer, Meloewoeng, both in Dutch East Indies.

Germany

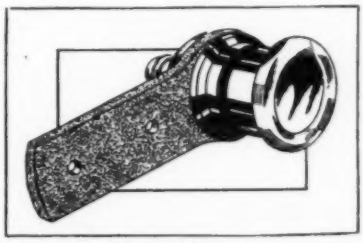
418,441 (December 4, 1923). Method of permanently marking articles made of vulcanized rubber. Dr. Bernhard Pleus, Nehringstrasse 21-22, Charlottenburg.

419,363 (November 28, 1924). Process and equipment for lining kettles and other vessels with rubber or similar chemical-proof substances. Dr. Heinrich Traun & Söhne, vormals Harburger Gummi-Kamm Co., Hamburg.

New Goods and Specialties

Rubber Tail Lamp

AUTOMOBILE accessory dealers should be interested in this unbreakable tail lamp which is mounted on a rubber bracket that gives sufficiently when hit yet holds the lamp rigidly in place when car is in motion. In case of collision, the bracket saves the whole lamp from damage, and also insulates the electric bulb from vibration and road shock, thus effecting a great saving in bulbs.



"Chemico" Flexarm

An important feature is the fact that the body can be turned in the socket, thus making it possible for the light projection at the side to be sent across the number plate. It can be supplied in either single or double pole, and has three metal plates which make it possible to be fitted to any car.—The County Chemical Co., Ltd., Bradford street, Birmingham, England.

Rubberwear Gloves

Rubberized cotton gloves, that are said to wear like cord tires, should be of interest to those handling acids, chemicals, oils and greases and will, no doubt, be a boon to the garage men. The illustration shows the heavy duty glove which is made of 10-ounce, long-staple cotton canvas, fleece-lined and with full gauntlet. The entire surface is first filled with a light rubber coating, then heavier coats of tough, long-wearing rubber compound are added, making it practically waterproof all over so that moisture cannot enter to rot the fabric. This glove is particularly recommended for any hard, wet work. Another model, best fitted for driving, garage and tire store work, is the full coated glove whose entire surface is filled and coated with a tough, long-wearing rubber compound, each thread of the fabric practically rubber covered. It has the wearing qualities of the ordinary leather faced work glove, but is moisture proof all over. There are other models of shorter length suitable for railroad, construction and lumber men.—The Rubberwear Glove Co., 154 Kenmore Boulevard, Akron, Ohio.

Heavy Duty Rubber Glove

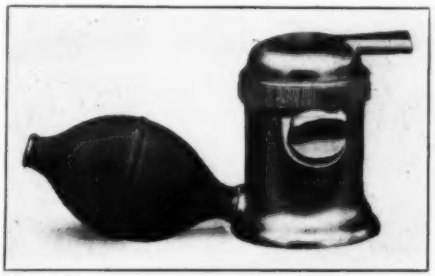
Rebuilding and Repairing Tires

Slightly used tires are often found in good condition for rebuilding. The weak places may be reinforced with skived patches, the treads built up with new rubber, and the tire vulcanized in full circle one-cure tire molds, using the air bag system. The tires are then finished with a talc solution on the inside and a black tire finishing solution on the outside.

The same company takes a "balloon boot," for the repair of balloon and high pressure tires. It is of already shaped-to-fit, three-ply cord construction, triangular in shape when fitted into the tire, and, it is claimed, will repair an injury as effectively as a square or rectangular boot.

The same maker also manufactures the "R-P Lace" boots for high pressure tires and "Stick-In Wing" and "Plaster" boots.—The Rubber Products Co., 200 South Boaz street, Fort Worth, Texas.

Handy Shaving Device with Rubber Bulb



The Latherizer

Every man who wields a razor will appreciate this novel shaving accessory. The Latherizer is a small, compact device, the sole purpose of which is to make a perfect lather. It consists of a liquid container, with soap tray therein, which is subject to air pressure from a rubber bulb. A small, specially made cake of soap having been deposited on the tray of the liquid chamber, water, hot or cold, is turned into the container, and the aperture closed. A few squeezes of the bulb are sufficient to furnish a lather of uniform evenness and spreading quality.—The Latherizer Corporation, 452 Fifth avenue, New York, N. Y.

Two New Rubber Erasers

A new type of erasers known as the "Whisk," are well constructed in attractive shapes with good full brush, and are planned to replace the detachable brush styles. The one here illustrated is a gray circular typewriter eraser with permanent brush fixture, while still another type, also with permanent brush fixture, is the Tri-Ply Red Circular typewriter eraser.—Weldon Roberts Rubber Co., 18-26 Oliver street, Newark, New Jersey.

"Whisk" Typewriter Eraser

Rubber for Stage Costumes

Among the new uses for rubber is its adoption as a material for certain stage costumes in Max Reinhardt's theater at Salzburg, Germany. In the production of "King Lear," and with the intention of giving every character the appearance of a marble figure, the assistant director had the idea of using rubber as the basic material for the clothing and of having it stitched, so that it fell into rigid folds. Great success is said to have been achieved in the scene where the king appears on the cliffs of Dover.

Rubber was again used in Reinhardt's production of von Hoff-

mannstahl's "Das Groosewelt-Theatre"—"The World's Stage." In this production also the costumes were painted and gilded, so that the characters resembled Gothic wooden statues.

Removable Maxi-Cushion Tire

Tire dealers' attention is called to this novel cushion tire with pneumatic qualities, built on a pneumatic tire base and designed for permanent use or for quick interchangeability when a light truck is called upon for a particularly hard job. This tire is interchangeable with 30 by 3½ inch, 32 by 4½ inch, 30 by 5 and 33 by 5 inch pneumatics without change of wheels, the only tools necessary being a jack and a wrench. It gives the small capacity truck maximum cushioning in an all-rubber, long-mileage tire, thus making possible a dual economy for the user—protection that cuts repair expense and extra mileage that reduces the cost-per-tire-mile and ton-mile.—Firestone Tire & Rubber Co., Firestone Park, Akron, Ohio.

Firestone R. M. C.

"Ultra" Rubber Cigar Holder

A cigar holder made of transparent rubber which should find a ready market with dealers. It is semi-hard, yet resistant, sanitary and non-absorbent, and could be appropriately used as a souvenir at banquets and club meetings.—The Clinton Rubber Co., Akron, Ohio.

Rubber Stamp Toy

A stamping and coloring set for children will prove an amusing as well as an instructive toy with which many interesting hours may be spent by the little folk. The set illustrated is the one stamping pictures of fruits and flowers; other sets are made up for representations of Brownies, of circus animals and the alphabet, etc. The set consists of twelve wooden blocks 1⅜ inches square. The tops are lithographed in colors showing different fruits, flowers, fish, etc. The bottoms contain the corresponding figures in the form of rubber stamps with which the outlines of the fruits, flowers, etc., can be printed. A stamp pad and paper tablet are supplied with the outfit. In addition a box of crayons is also furnished with which the child may color the pictures to suit his fancy.—Baumgarten & Co., 213 East Fayette street, Baltimore, Maryland.

Fruit and Flower Set

Rubber Paste for Mending

A rubber adhesive, which may be used in many different ways for mending all kinds of cloth, paper, rubber, leather, wood and other materials, is now being sold under the name of "Titite." This paste is partly composed of rubber and is waterproof. According to the manufacturer, this paste will mend almost anything from silk stockings to auto tops. All that is needed is to have a patch of the same material as that of the article to be mended. Then attach the patch with Titite. It is stated that a piece of cloth repaired with this adhesive may be put through the wash and the patch will stay on perfectly. Small holes in hot water bottles, for example, may be repaired by using the paste alone without a patch. The paste is colorless, flexible when dry, strongly adhesive.

This article is finding a market with general users and with hospitals, upholsterers, photographers and other trades which require a reliable adhesive. The paste is packed in handy tubes for home and travel and in cans for industrial use. The trade mark is a Titan.—The Titite Co., 112 Upland Terrace, Bala-Cynwyd, Pennsylvania.

A New Under Costume with Elastic Inserts

A most attractive new addition to the Gossard line is the Dancelette, which is shown in the illustration. This garment is specially designed for the comfort of the girl who rolls her hose. It is cut out to fit the figure and has two soft bands of material, one about each thigh, which are designed to fit, and to hold the garment perfectly in place. This special feature removes the need for having supporters attached to the under garment and saves the wearer from much annoyance, through the undergarment getting out of place if used without garters. The Dancelette is made in several different materials, silk or satin tricot and slipper satin, combined with woven elastic. It is boneless, but is said to accomplish smooth lines with no hint of corsetry. According to the manufacturer, the garment gives with each motion of the wearer, but nevertheless keeps her looking trim, neat and smart whether riding, walking, dancing or even swimming.—The H. W. Gossard Co., 100 East Ohio street, Chicago, Illinois.

The Dancelette

Shock Absorber for Use with Balloon Tires

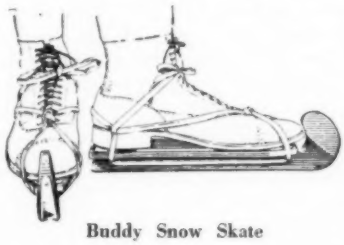
When balloon tires were first introduced, it was widely thought that cars equipped with such casings did not need shock absorbers. Now, however, it is said that certain cars equipped with balloon tires need such devices fully as much as those cars with standard tires. Balloon tires set up spring reactions of a different type from those which occur with other casings and require springs of deeper range and of more resiliency and softness. To meet this need a novel rebound check and shock absorber has been developed. According to the manufacturer, this stabilizer controls the smallest as well as the largest jolt and eliminates the jerks and jumps in handling the spring rebound, and it is claimed also that the rubber connecting belt acts very quickly. This belt is entirely on the outside of the stabilizer and the internal mechanism is sealed against the entrance of dirt, grit, water or any other foreign substance. A separate model of the "Hassler" is now manufactured for use on such cars as the Hudson, Essex, Dodge, Buick, Overland, Chevrolet and Ford. Each device is adjusted and fitted for the car before it leaves the factory. They are neat in appearance, and, it is stated, are easily applied, and both durable and dependable.—R. H. Hassler, Inc., Indianapolis, Indiana.

Monocle With Rubber Eye

A novelty which should amuse adults as well as children is the "Popping Optic." This is shaped like a monocle with a rubber eye inset to which is attached a rubber tube and bulb. When the bulb is pressed the eye pops out in a most realistic manner. It has had great vogue in England where it is known as the "Wembley Eye."—J. G. Franklin & Sons, Ltd., 11-17 Colvestone Crescent, Dalston, London E.8, England.

Snow Skates with Rubber Grip

Ice skating is restricted to those who live where a lake or pond is accessible, but with snow skates, the fun and exercise of skating may be enjoyed wherever there is snow. The packed snow of the sidewalks and hillsides is the best road. Snow skates are now on the market under the name of Falcon Buddy Snow Skates and herewith illustrated. They are built to hold the weight of the heaviest adult and yet are light enough so as not to tire the smallest child, according to the manufacturers. They are made of straight grained hickory and of specially treated steel which will not rust. The footbed or flat top of the skates is covered with a corrugated rubber to provide a non-slipping gripping surface for the shoes. Buddy skates are fastened to the shoe by a rawhide harness and will hold firmly throughout hours of hard usage.—American Manufacturing Co., Falconer (near Jamestown), New York.



Buddy Snow Skate

Balloon Tire Velocipede

The Toledo Metal Wheel Co., Toledo, Ohio, has recently added to its line of children's vehicles, a new balloon tire velocipede. This is equipped with bicycle spoke wheels, mud guards, rubber pedals and grips, motorcycle type of saddle, tool bag and nickel plated bicycle bell, and is finished in a rich maroon bicycle enamel baked hard. It comes in three standard sizes as follows: 16, 20 and 24 inch front wheel diameters.

"Toledo Blue Streak Line"

Automatic Self-Supplying Fountain Pen

A fountain pen, which saves the user the time and annoyance of constant refilling, is now being sold under the name of the Leon-R-Dunkley Two-in-One Pen. Each pen is filled with a year's supply of concentrated ink. All that is necessary to do is to fill the pen with water and write instantly with ink. The fountain pen barrel is manufactured from high grade vulcanized rubber, turned by experts and highly finished. The point is of 14 kt. gold, hard iridium pointed. The pen requires recharging with the concentrated ink but once a year and this ink is stated to have no sediment and to be a perfect writing fluid.

According to the manufacturers there is absolutely nothing to get out of order, the fingers cannot get soiled and the pen will wear extremely well. The pen costs no more, it is said, than any good fountain pen on the market. It is made in five sizes.—Modern Pen Co., sole agents; Dunkley Pen, Inc., 17 Battery Place, New York, N. Y.

"Bubbles of Joy"

A merchandising idea that, according to the manufacturers of the goods, is proving effective and popular, is called the "Bubbles of Joy" assortment herewith illustrated. A carton is filled with 144 colorful and striking toy balloons. Airships, squawkers, nursery rhyme, valve and other kinds of balloons are included. The moment a youngster sees this vivid display, he or she is anxious to get a balloon. The assortment is packed in a bright carton lithographed in many attractive colors. It is said to have been designed by a leading lithograph artist and has a strong appeal both to children and to adults. The display feature shows a typical American youth with head tilted back. He appears to be inflating an actual balloon which is shown inserted in his mouth.—Oak Rubber Co., Ravenna, Ohio.

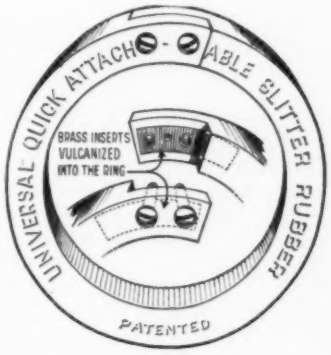
Toy Balloon Assortment

Change in "Amplion" Construction

Three models of the "Amplion" loud speaker horns are now prepared with a new method of assembling. The flare of the horn is fitted with a threaded metal screw, which is held to the sound conduit by a heavy rubber bushing. In this way assembly is quick and rigid.—Alfred Graham & Co., London, England.

Rubber Rings for Tin Cutting Machines

In the usual slitter machine employed for cutting sheet tin to exact sizes for the manufacture of cans, from 6 to 12 rubber rings are used. These act as a friction drive and in service are frequently cut so that they must be replaced. Hitherto it was necessary to dismantle the machine to renew the rings, which was costly in time and labor. The illustration represents an attachable slitter rubber which can be applied in two minutes. It is molded with a mortise joint provided with brass inserts vulcanized in place which interlock when closed. These rubbers are assembled on a shaft, then stretched into position on the hub in the machine and fit snugly into place. The rings are made in 3 sizes and in best quality for maximum service.—Universal Rubber Manufacturing Co., 938-958 Harrison street, San Francisco, California.



Universal Slitter Rubber

Abstracts of Recent Articles

SOME TENDENCIES IN RUBBER COMPOUNDING. A lecture before the London Section of the Institution of Rubber Industry, September 14, 1925. Economy is the prime motive behind present day compounding in reference to economy in physical testing, compound records through standardization, the use of lower grade rubbers in milling, the use of softeners to reduce power cost, etc. Economy in reinforcement may be defined in terms of capacity for work or proof resilience per unit volume cost. The practical importance of high volume compounding makes possible a new series of rubber mixings which bridge the gap between soft and hard rubber, in other words, the attainment of high rigidity without sacrificing tensile strength and extensibility.—W. B. Wiegand, *Rubber Age*, London, September, 1925.

REVIEW OF OLD AND NEW METHODS OF RECLAIMING RUBBER. (German.)—Ludwig Stoll. *Gummi-Zeitung*, July 24, 1925, 1698-1701.

ACCELERATORS AND THEIR USE. A comprehensive article on the nature, practical requirements and characteristics of various types of organic and inorganic accelerators with voluminous references to the literature.—Dr. L. Stoll, *Rubber Age*, New York, September 25, 1925, 407-410.

VULCANIZATION AND ACCELERATORS. Part II. Serial. André Dubosc, *Rubber Age*, New York, October 10, 1925, 24-25.

DISTRIBUTION OF CARBON BLACK IN RUBBER STOCKS. Ellwood Spear and Robert L. Moore, *Rubber Age*, London, October 1912, 393-395.

ELECTRO-VISCOUS EFFECTS IN RUBBER SOLS. G. S. Whitby and R. S. Jane, *Second Colloid Symposium Monograph*, 1925, 16-28.

HYDROGEN-IRON CONCENTRATION IN THE LATEX OF HEVEA BRASILIENSIS. W. Bobilihoff, *Archief voor de Rubbercultuur* 8, 609-24, 625 (1924).

COMPOSITION AND PROPERTIES OF NATIVE RUBBER. The loss in washing of 18 samples of slab rubber prepared by native planters in various parts of the Dutch East Indies averaged 27.7 per cent. In a number of samples from Djambi the loss was much higher. Crêpe prepared from the former samples had a high ash content (0.8-0.9 per cent), a fairly high tensile strength (average 1.38 kg. per mm.), a time of cure ranging from 50 to 145 minutes and a normal slope. The viscosity in acidified benzole was low; hence the rubber was from young or heavily tapped trees. Native sheet and amber blanket, prepared in factories from native slab, resembled the crêpe, especially in its very variable time of cure.—W. Spoon, *Archief voor de Rubbercultuur* 9, 555-73, 1925.

VULCANIZATION BY MEANS OF COLD. (German.) By cooling crude rubber to about —50 degrees C. a highly elastic substance was obtained with properties corresponding to those of vulcanized products. This process was termed physical vulcanization.—M. L. Banc and M. Kröger, *Kolloid Zeitschuft*, October, 1925, 205-214. Tables, chart, illustration.

PARTIAL COAGULATION OF LATEX. The coloring matter ordinarily present in raw rubber may be removed with a clot formed by treatment of latex containing 2.5 pounds of rubber per gallon with sodium sulphite, 1 pound (in 10 gallons of water per 100 gallons of latex) and acetic acid (0.028 per cent of the volume of the latex). Light colored rubber about 95 per cent of the whole is obtained on completing the coagulation with acetic acid.—J. Edwardes, *Bulletin Rubber Growers' Association*, 7, 327-30, 1925.

AVIATION DOPES OR VARNISHES. Maurice Deschiens, *Chemistry and Industry*, September 11, 1925, and *India Rubber Journal*, October 3, 1925, 663-666.

EFFECTS OF STRESSES IN HOSE FABRIC. A mathematical discussion.—E. Jantzen, *India Rubber Journal*, October 10, 1925, 699. Diagrams.

SODIUM SILICO-FLUORIDE FOR COAGULATING RUBBER. Recommendations for its use and Abstract of Manufacturers' Reports on Smoked Sheets.—H. P. Stevens, *Bulletin Rubber Growers' Association*, September, 1925, 555-560.

PARANITROPHENOL AS A MOLD PREVENTIVE. Recommendations for its use.—H. P. Stevens, *Bulletin Rubber Growers' Association*, September, 1925, 561.

AGING TESTS ON RUBBER COAGULATED WITH ACETIC ACID AND PARANITROPHENOL.—H. P. Stevens, *Bulletin Rubber Growers' Association*, September, 1925, 565-567.

FORMIC ACID AS A LATEX COAGULANT. Recommendations for its use.—H. P. Stevens, *Bulletin of the Rubber Growers' Association, September*, 1925, 561.

FORMIC ACID AS A COAGULANT Conclusions: 1. Formic acid has approximately twice the coagulative power of acetic acid the latter being replaced by one half of the former.

2. Rubber produced with the minimum proportions of formic acid as a coagulant is indistinguishable from that obtained with acetic acid as the tensile properties and rate of vulcanization are substantially the same in a pure rubber sulphur mix, a litharge mix and a mix containing an organic accelerator. The differences shown between the samples of formic acid coagulated rubber and the acetic acid coagulated controls are not greater than are commonly found between different samples of acetic acid coagulated rubber.—H. P. Stevens, *Bulletin Rubber Growers' Association*, September, 1925, 568-570.

THE VARIOUS DISPERSION FORMS OF FILLERS FOR RUBBER. (German.) For mixings of 75 parts rubber and 25 parts golden sulphuret of antimony it is shown that in the first of the three stages which rubber mixings undergo in dispersion, the adsorption curve for that division was poor while for the third stage the curve was good. The influence of fillers on the firmness of rubber is not caused by coagulation of the highly disperse phase of the fillers. In rubber made directly from latex to which fillers were added, the dispersion differed considerably from the previous case and the physical properties were favorable.—Dr. H. Pohle, *Gummi-Zeitung*, September 25, 1925, 2352.

THE NEW METHOD IN EXPERIMENTS WITH RUBBER AND SIMILAR HYDROCARBONS. (German.) Description of the micromanipulator and its accessories which permit the most varied and delicate manipulations of any object under the microscope. This apparatus has been of great use in investigation of the structure of the rubber molecule, and in following the process of vulcanization. Dr. E. A. Hauser, *Gummi-Zeitung*, September 25, 1925, 2352.

WHY DOES LATEX RUBBER BECOME GLUEY DESPITE VULCANIZATION. (German.) In Europe the use of latex rubber has been practically abandoned because it becomes gluey in the summer. The problem of the glueyness of latex rubber has been solved in England and America. The author explains that in latex rubber, vulcanization is only partially completed, if at all, as the albumen film surrounding the rubber prevents the latter from being affected by the vulcanization process, while it absorbs colloid sulphur and by putrefaction transforms this into sulphuric acid which disperses the rubber substance. The warm, damp atmosphere of summer favors albumen putrefaction.—Dr. Rudolf Ditmar, *Gummi-Zeitung*, September 18, 1925, 2285-2286.

INVESTIGATIONS INTO THE NATURE OF SLAB RUBBER. (Italian.) G. Bruni and T. G. Levi, *Giornale di Chimica Industriale ed Applicata*, August, 1925, 447-451. Tables.

THE RECOVERY OF SOLVENTS OF RUBBER BY HIGHLY ACTIVE CARBON, BY THE BAYER AND METALLBANK PROCESSES. (French.) Dr. Rudolph Ditmar, *Le Caoutchouc et la Gutta Percha*, September 15, 1925, 12810-12812. Diagrams.

MODERN METHODS OF BREAKING DOWN AND DE-COTTONING RUBBER WASTE. (French.) A. D. Luttringer, *Le Caoutchouc et la Gutta Percha*, September 15, 1925, 12823-12825. Diagrams.

The Editor's Book Table

Book Reviews

"STANDARD METHODS OF CHEMICAL ANALYSIS." A manual of Analytical Methods and General Reference for the Analytic Chemist and for the Advanced Student. Edited by Wilfred W. Scott, Sc.D., in collaboration with eminent specialists. Fourth edition. Two volumes. New York, D. Van Nostrand, 1925. Cloth, 1805 pages, 6 by 9 inches. Indexed. Illustrated. Tables.

VOLUME I is confined to the elements. Part 1 giving analytic methods is supplemented by Part 2, Qualitative Tests of Substances and Part 3, Tables and Useful Data.

Volume II—Special Subjects. This volume embraces analytic methods practiced by chemists in more than a score of branches of industrial chemistry and are invaluable to chemists and technologists. The chapter on rubber covers 36 pages and will be of special interest to rubber chemists and technologists. Methods of analysis are given for crude rubber fillers, reclaimed rubber, vulcanized rubber, gutta percha, and balata. There are also included the standard methods for the analysis of rubber goods approved by the Supervisory Committee on Standard Methods of Analysis of the American Chemical Society, March 1, 1924.

"INDUSTRIAL CHEMISTRY." A Manual for the Student and Manufacturer. Edited by Allen Rogers. Fourth Edition. New York, D. Van Nostrand Co., 1925. Two volumes. Cloth, 1267 pages, 5¾ by 9½ inches. Indexed. Illustrated.

In the preparation of this book the editor has been ably assisted by 34 well-known experts, each dealing with his specialty in a separate contribution. For convenience the subjects treated are classed as organic and inorganic and each division constitutes a separate volume.

Rubber and related gums are covered in the space of 26 pages, within which limitation the author has presented a clear and condensed account of crude rubber, its source, preparation, materials and the processes used in the manufacture of rubber products. Under research chemistry, synthetic rubber, vulcanization accelerators and the vulcanizing process are discussed. Rubber technologists will take exception to the statement that pontianak has value for belting friction, and to the method indicated for figuring the value of the rubber content in reclaim.

"NATIONAL DIRECTORY OF COMMODITY SPECIFICATIONS." Published by the Department of Commerce, Washington, D. C. Cloth, 8 by 11 inches.

A classified alphabetical list and brief description of existing commodity specifications formulated not only by public purchasers throughout the United States, but also by the nationally recognized trade associations, technical societies, and public utilities. The book tells not only what rubber goods specifications are in use, but also by whom they were prepared.

"CHEMICAL ENGINEERING CATALOG, 1925." Tenth annual edition. Published by the Chemical Catalog Co., Inc., 19 East 24th street, New York, N. Y. Leather, 1172 pages, illustrated, 9 by 11½ inches.

This 1925 edition of a well-known work is larger than previous publications, additions having been especially made in the classified directory section, and also the division listing technical and scientific books. A carefully-prepared index, with cross references, is always an important feature of this useful catalog.

"RAHWEDIA—A TRUE ROMANCE OF THE SOUTH SEAS." By C. Harold Smith. Published by D. Appleton & Co., New York, N. Y., 1925. Cloth, illustrated, 214 pages, 5½ by 8 inches.

In this volume the author relates his early personal experiences in New Zealand, and supplies some interesting information regarding the Maori tribes. Mr. Smith is connected with the Binney & Smith Co., 41 East 42nd street, New York, N. Y., manufacturers and exporters of chemicals and colors for the rubber industry.

New Trade Publications

"CUTLER-HAMMER MAGNETIC CLUTCHES," IS THE TITLE OF A well printed and illustrated booklet sent out by The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, the bulletin representing the utilization of such equipment by the various industries including rubber manufacture.

"THE MANUFACTURE OF RUBBER FOOTWEAR—AN ILLUSTRATED Story of Rubber From its Growth to the Finished Product," is the title of an attractive and well illustrated booklet published by the La Crosse Rubber Mills Co., La Crosse, Wisconsin, in which the reader is told of the discovery of rubber, its preparation and uses in present-day factories.

"CENTRIFUGAL PUMPS, SINGLE STAGE AND MULTISTAGE" IS THE title of a well printed and illustrated bulletin sent out by the De Laval Steam Turbine Co., Trenton, New Jersey.

"INDUSTRIAL MARKETING—A SURVEY OF THE BUYING HABITS of Industry," published by McGraw-Hill Co., Inc., Tenth avenue and 36th street, New York, N. Y., represents an interesting study of the various industries with a view to sales promotion.

"THE MERCHANTS' ASSOCIATION OF NEW YORK, YEAR BOOK, 1925," includes among many items the names of officers and directors of the organization, as well as reports from various committees. Members are listed both alphabetically and under the various industries with which they are connected.

"HIGHWAY RESEARCH NEWS" IS THE TITLE OF A BULLETIN which is to be issued twice a month by the Highway Research Board of the National Council, B and 21st streets, Washington, D. C. The publication is prepared in the interests of the various organizations throughout the country which are engaged in highway research.

A PAMPHLET HAS BEEN RECEIVED WHICH CONTAINS IMPORTANT information regarding the Seventh International Exhibition of Rubber, Other Tropical Products, and Allied Industries, which will be held in Paris, France, from January 21 to February 6, 1927.

UNDER THE TITLE "THE STORY OF LINK-BELT, 1875-1925," A unique and handsomely printed and illustrated booklet, recalling the main features of the company's development during the last fifty years, is being published by the Link-Belt Co., 300 West Pershing Road, Chicago, Illinois.

A SPECIAL INTERNATIONAL EXTRA NUMBER OF THE *India-Rubber Journal* was published on September 30, in which appeared contributed articles on foreign trade, the manufacturing and distributing of rubber goods, and the planting, cultivation and marketing of crude rubber. The issue was prepared in the interests of international trade.

"THE TAYLOR STOKER" IS THE TITLE OF A WELL ILLUSTRATED and informative bulletin containing data regarding the installation of mechanical stokers in industrial power plants and central stations, sent out by the American Engineering Co., Philadelphia, Pennsylvania.

"RADIO SETS THAT JACK AND DAD BUILT—AND HOW THEY BUILT Them." An illustrated booklet of forty-eight pages published by the Hard Rubber Manufacturers Division of the Rubber Association of America, Inc., 250 West 57th street, New York, N. Y. The bulletin, written by M. B. Sleeper, editor of *Radio Engineering*, describes and illustrates five standard "hook-ups," and also supplies wiring and schematic diagrams and step-by-step assembly instructions for each set, as well as many helpful suggestions regarding installations, maintenance, the care and use of dry cell and storage batteries, etc.

The Obituary Record

Famous German Rubber Pioneer

DR. SIEGMUND SELIGMANN, a pioneer of the German rubber industry, and for many years managing director of the Continental Caoutchouc und Gutta Percha Compagnie, Hannover, Germany, died recently at the age of 72.

Dr. Siegmund Seligmann

Born on August 19, 1853, at Verden (Aller), he passed through the Royal Cathedral Gymnasium at Verden, later on studying privately at Harburg (Elbe). His commercial training was received in the banking house of B. Magnus, the proprietors of which were co-founders of the Continental company in 1871.

The business of the Continental company did not prove profitable at first, however, and in 1876 Herr Seligmann, in the capacity of cashier of Messrs. Magnus, reorganized the company and with the aid of that eminent chemist, the late Dr. Adolph Prinzhorn, put it on the road to rapid growth and great prosperity. In 1879 he became a member of the board and thereafter held various posts of increasing responsibility, culminating in the direction of the company's operations in 1909, a position which he occupied with distinction until his death. Under his management the company became one of the greatest rubber manufacturing concerns of the world and he became the outstanding rubber man.

Herr Seligmann was perhaps not known in England and in the Americas as was that much loved member of the Continental, Dr. Adolph Prinzhorn. This was not from lack of the same sterling qualities but because he remained at home while his confrere was a frequent and welcome visitor to the rubber men in other countries. He was, however, of the very best type of German industrialist, wise, frugal, with broad business vision and singularly free from race prejudice. He was a power for good, particularly during the troublous times that began some ten years ago.

He was a member of the Hannover Chamber of Commerce, of the board of the Central Association of German Rubber Goods Manufacturers, and a member of the board of the German Exhibition Commission.

The rubber industry of Germany, and of the world, loses a good man and strong.

Passing of Mrs. Staines Manders

The many friends of Mrs. Manders, the widow of Staines Manders, learned with deep regret of her recent death at her home in Acton. Of a genial personality, she will be especially remembered for her social activities during the International Rubber Exhibitions of 1908, 1911, and 1914.

Brother of Harvey S. Firestone

Elmer S. Firestone, brother of Harvey S. Firestone, president of the Firestone Tire & Rubber Co., died suddenly on October 20 at his home, 742 Southwestern avenue, Los Angeles, California. He had been spending a week-end at Catalina Island, where he was taken ill, and two days before his death he was removed to his home.

Elmer S. Firestone

Identified with his brother's organization since its establishment a quarter of a century ago, Mr. Firestone was particularly interested in the selling end of the business, and had served as branch manager at Cleveland, Cincinnati, Buffalo and Los Angeles, being in charge of the last-mentioned division at the time of his death. He had also been instrumental in organizing the San Francisco branch of the Firestone company, and later the division at Buffalo, New York, residing in the latter city for several years before taking charge of the Los Angeles branch.

Mr. Firestone is survived by his widow, two sons, three daughters, and two brothers, one of these brothers being R. J. Firestone, head of a tire manufacturing concern at Cleveland, Ohio. The funeral services were held at Columbiana, Ohio, where Elmer Firestone was born sixty-one years ago.

Superintendent of the Brunswick-Balke-Collander Co.

Michael James Whelan, superintendent of the Brunswick-Balke-Collender Co., North Muskegon, Michigan, and a stockholder in the same company, died July 6, 1925, of pneumonia, aged 68 years.

He was born at College Point, New York, April 7, 1857, and educated in the public and military schools there, graduating at the age of 17. Much of his boyhood spare hours and vacations were spent working for the India Rubber Comb Co., at College Point. Thus he became interested in rubber manufacture and at the age of 22 went to the American Hard Rubber Co., Akron, Ohio, where he remained eighteen years and became general foreman and direct assistant to Dr. Goodrich.

Michael J. Whelan

He then spent a year as superintendent of the Bowers Rubber Co., San Francisco, California, after which he went as superintendent to Morgan & Wright, Detroit, Michigan, and inaugurated a line of hard rubber goods for that concern.

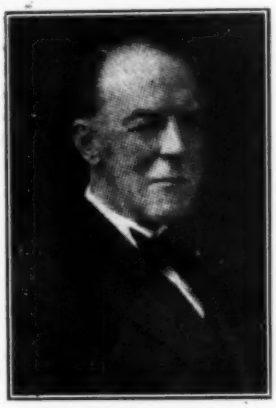
In 1905 he brought out for the Brunswick-Balke-Collender Co. the famous mineral light bowling ball, and perfected their billiard cushion. Later he developed the whalebonite toilet seat and tenpins of whalewood.

Until a few days before his death Mr. Whelan was active as

superintendent. He was an Elk and an Odd Fellow, and is survived by one daughter, Mrs. Belle M. Myers, of Waukegan, Illinois, and five grandchildren. Burial was at Paris, near Big Rapids, Michigan.

Passing of Philip H. Lockhart

The many friends and business associates of Philip H. Lockhart were shocked to learn of his sudden death in London on September 2. For nearly forty years he had been connected with the manufacturing organization known as W. & A. Bates, Ltd., and was chairman of that company up to the time of its recent amalgamation with the Dunlop Rubber Co., Ltd. He had been also chairman in 1903-4 of the India Rubber Manufacturers' Association, and was one of the founders of that body which had emanated from the first similar trade organization, the Thread Association.



Philip H. Lockhart

In 1909 Mr. Lockhart had made a visit to the United States, and again in 1923 when his purpose was to confer with American rubber manufacturers and the Rubber Association of America on the question of the Stevenson restriction plan. At a meeting called in Washington on February 27 and 28, 1923, and attended by representatives of rubber, automobile and accessory manufacturing companies, Mr. Lockhart made an address, taking as his subject "The English Rubber Manufacturers' Attitude Toward Rubber Restriction Legislation." A broad-minded man, and thoroughly familiar with all phases of rubber manufacturing, his passing is a distinct loss to the industry.

Prominent in Masonic Circles

D. B. Atkinson, who recently died in Montreal, was for the past 11 years with the purchasing department of the Dominion Rubber System. He was prominently connected with the Masonic Fraternity, being secretary of one lodge and identified with other Masonic bodies. He likewise took an active part in religious matters, being a member of the Wesley United Church. W. A. Eden, president of the Consolidated Rubber Co., Ltd., H. R. Nixon, general purchasing agent, were present at the funeral.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
*984	"Crude Rubber Consumed in United States First Seven Months of 1925."
*989	"Crude Rubber Consumed in United States First Seven Months of 1925. Divided by States."
995	"Tire Exporters' Weekly News Letter."
*996	"August Imports of Golf Balls."
*997	"August Imports of Rubber Tires."
*998	"Market for Machinery Belting in Sweden."
*999	"Crude Rubber Re-exports from the United States, Month of August, and Value per Pound of Crude Rubber Imports."
1000	"Export Trade Notes of Rubber Sundries and Specialties."
1001	"Tire Exporters' Weekly News Letter."
*1002	"Canadian Tire Exports During August."
1006	"Tire Exporters' Weekly News Letter."
*1013	"Preliminary Statistics of Dealers' Stocks of Automobile Tires—October 1, 1925."
1014	"British and French Tire Exports, August, 1925."
1015	"Tire Exporters' Weekly News Letter."

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
675	Where soap bark may be obtained.
676	Manufacturers of tan raincoats to be worn over riding habits.
677	Names of leading toy manufacturers.
678	Manufacturers of rubber specialties.
679	Manufacturers of duroprene.
680	Machine for pulling tire fabric.
681	Address of Featheredge Rubber Co.
682	Makers of toggle presses for cutting out inflated rubber balls.

Foreign Trade Opportunities

Address and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th Street, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
16,965	Austria—Footwear, toys and specialties	Agency
17,039	Germany—Tires, pneumatic and solid, for automobiles and commercial cars	Agency
17,109	Germany—Rubber heels	Agency
17,110	Egypt—Balls, grey and other colors; shoes, canvas, rubber-soled, and carriage tires	Purchase and Agency
17,120	Sweden—Rubber balloons	Agency
17,145	Argentina—Automobile tires	Purchace and Agency
17,251	Sweden—Hot-water bottles	Purchase
17,252	England—Rubber balloons	Agency
17,253	Austria—Rubber specialties for department store trade	Agency
17,254	Germany—Rubber toys	Agency
17,263	Germany—Rubber sponges	Purchase
17,359	Trinidad—Rubber footwear	Agency
17,360	Australia—Bathing caps	Purchase or Agency

STATEMENT OF THE INDIA RUBBER WORLD

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of THE INDIA RUBBER WORLD, published monthly at New York, N. Y., for Oct. 1, 1925.

State of New York }
County of New York } ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared E. M. Hoag, who, having been duly sworn according to law, deposes and says that she is the business manager of THE INDIA RUBBER WORLD, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The India Rubber Publishing Co., 25 West Forty-fifth street, New York City.

Editor, Henry C. Pearson, 25 West Forty-fifth street, New York City.

Managing Editor, Henry C. Pearson, 25 West Forty-fifth street, New York City.

Business Manager, E. M. Hoag, 25 West Forty-fifth street, New York City.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

The India Rubber Publishing Co., 25 West Forty-fifth street, New York City.

Henry C. Pearson, 25 West Forty-fifth street, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

E. M. Hoag, Business Manager.

Sworn to and subscribed before me this 21st day of September, 1925.

(Seal) HARRY HOAG, Notary Public.

Certificate filed in New York Co., No. 345. New York Co. Register's No. 7123.

(My commission expires Mar. 30, 1927.)

Rubber Hedging Explained

Speculative risk in the ownership of any commodity during wide market fluctuations may be avoided by hedging on an organized future exchange as is done in cotton, grain, sugar, coffee, cottonseed oil, etc., by merchants and manufacturers.

A cotton merchant who buys actual cotton immediately sells a future cotton option on the New York or New Orleans or Liverpool Cotton Exchange, which eliminates the risk of cotton declining while he has it in his possession. Immediately upon his selling this cotton to a manufacturer, he buys in his future sale.

Similarly, a cotton manufacturer who purchases cotton either for immediate shipment or future delivery, if he has not already sold finished goods against this cotton, sells a future cotton option on one of the recognized exchanges against his actual purchase. Then, when he sells his goods, on which this cotton is figured, he immediately buys in his future sale.

If a cotton manufacturer sells finished goods for future delivery against which he has not yet purchased his actual cotton, he immediately purchases a future cotton option against this sale of goods and upon purchasing his raw commodity he sells his future option.

A rubber manufacturer may desire to buy rubber sufficient to cover his future needs. The speculative risk of a decline in price may be avoided by the sale of future options against this stock, the futures being bought in as fast as he sells his manufactured product. Losses in inventory value of his rubber incident upon a declining market would thus be offset by the profit in his future hedge. In an advancing market, his hedge loss is compensated by the increased value of his rubber. The effect of the operation is to keep the price of his rubber constantly at the market.

A rubber manufacturer having bought rubber for later delivery at prices below the current market, may protect himself against loss of profit through a decline in the market, by selling on the exchange a future option against his long position which option he can cover when advisable. One of the advantages of a rubber exchange is that orders to buy or sell can be executed immediately.

These procedures are carried on in practically all commodities where there are violent fluctuations with the exception of rubber. It is true that actual rubber is bought for future delivery but there being no exchange here in America, it is not the practice of rubber dealers and rubber manufacturers to hedge their operations. The Rubber Trade Association of London is a recognized exchange offering dealers and manufacturers facilities for hedging rubber sales and purchases.

EXPOSITION OF CHEMICAL INDUSTRIES

The Eleventh Exposition of Chemical Industries will be held two years hence at the Grand Central Palace, New York, N. Y during the week of September 26 to October 1, 1927. Although this exposition will not occur for two years, the majority of leading exhibitors have already contracted for their spaces.

FIRESTONE LIBERIA PLANTATION CO. BEGINS WORK

Harvey S. Firestone, Jr., in charge of the new project for growing rubber in Liberia, sailed the middle of October for London, where he will establish an office. Work is to begin immediately and twenty separate planting organizations have been ordered to plant in various parts of Liberia as much land as is physically possible. Each organization includes an experienced rubber planter and assistants from the Far East. The company is also equipped with a medical staff, civil and mechanical engineers, forester, soil expert, etc. Negotiations for the Liberian concessions were completed in New York by Edwin Barclay, Liberian Secretary of State.

RUBBER TRADE ASSOCIATION SETTLEMENT HOUSE DEPARTMENT

The Rubber Trade Association of New York, 75 Maiden Lane, New York, N. Y., has established a new department known as the Settlement House, the purpose of which is to facilitate the fulfilment of contracts for the sale and purchase of crude rubber. Settlement between buyer and seller is effected under special rules and settlement contracts providing for registration of each transaction.

One of the rules guarding qualities provides that "Parties to contracts for qualities other than standard quality ribbed smoked sheets or standard quality first latex crêpe, as understood in New York, may avail themselves of the privileges of the Settlement House by executing a settlement house contract and stipulating therein the differential in price between the quality actually sold and standard quality ribbed smoked sheets, as agreed to by the parties to the contract. The sum of the contract price and the differential shall be the registration price. By the execution of this form of contract the parties agree to the adjustment of any variation in price between the registration price and the price of standard quality ribbed smoked sheets at each settlement called for on contracts for the latter quality. Each grade or quality registered by the Settlement House shall be handled as a separate entity."

The operation of the Settlement House thus safeguards fair dealing in disputes of qualities of rubber delivered under contract by members of the Rubber Trade Association of New York.

IMPRESSED MOLD SURFACES

Hitherto it has been practically impossible to prepare the interior of a mold in such a way as to impart to the surfaces of the molded rubber article a decorative effect resembling sewed, knitted or embroidered fabrics. Hard rubber molds for imparting these and similar effects are now possible due to a recently invented process.[1] By this method a fabric which is to serve as the pattern is impressed as deeply as necessary to give the intended result. By means of vulcanization under pressure the rubber is then converted into ebonite, whereby every depression and elevation corresponding perfectly to the surface of the fabric become fixed on the surface of the ebonite body. After vulcanization in ebonite, the textile pattern is separated from the mold surface by destroying it with applications of acid which carbonizes the textile material and permits its easy removal. In a hard rubber mold thus prepared soft rubber articles may be vulcanized and the objects receive surfaces which in the slightest detail conform with the surface of the fabric which was used as a pattern. In this way rubber cloths and carpets can be made for use as protection for toilet services on washstands and as carpets in bathrooms.

[1] United States patent 1,550,160.

TIRE AND TUBE PRODUCTION

The production of pneumatic tires from January 1 to July 31, 1925, totaled approximately 27,552,000, a gain of 28.4 per cent over the 1924 total of 21,455,000 casings. The corresponding production of inner tubes for the 1925 period stood at 35,900,000, an increase of 31.5 per cent over the 1924 total of 27,304,000. Solid tire production during the first seven months of 1925 was 364,000, a gain of 6.4 per cent over the 1924 figure of 342,000 tires.

IMPORTS OF CRUDE RUBBER INTO THE UNITED STATES BY CUSTOMS districts totaled in August, 1924, 48,769,911 pounds, value $9,865,285. For August, 1925, the amount imported had risen to 74,844,042 pounds, while the value, at $39,834,348, represented a more than fourfold increase.

News of the American Rubber Trade

Rubber Industry Outlook

THE rubber industry is sharing in the general prosperity prevailing in all lines at the present time. The chief feature threatening its continuance is the possibility of the extension of the anthracite coal strike to include miners of bituminous coal.

The record automobile production for the first nine months of 1925 and motoring popularity maintained tire production at full capacity up to October 1. Automotive production now tends downward and tire output is responding to the extent of a reduction of about 20 per cent below capacity at which level it is expected to continue the remainder of the year.

Government survey of tire and tube stocks in the hands of dealers shows these to average, on October 1, a little above those of a year ago. Retail tire business continues good in all sections with dealers comfortably stocked with goods purchased before the acute rise in crude rubber prices.

In consequence of the crude rubber situation the leading tire manufacturers advanced tire prices October 17, 15 per cent on most sizes and raised the prices for inner tubes and solid tires 20 per cent. These advances apply to both balloon and high pressure tires and became necessary for the maintenance of reasonable manufacturing profits.

In other branches of the industry, such as rubber footwear and mechanical goods, prices are advancing by reductions of former discounts from catalog lists particularly on new business. Production in these two, as well as the minor divisions of rubber manufactures is in fair to heavy volume. Business is expanding moderately in all rubber lines and, except in the case of specialties, is being done on closely competitive lines.

Financial

Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Firestone Tire & Rubber Co.	Com.	$1.50 q.	Oct. 20	Oct. 10
Firestone Tire & Rubber Co.	6% Pfd.	1½% q.	Oct. 15	Oct. 1
Fisk Rubber Co.	First Pfd.	$1.75	Nov. 2	Oct. 26
Goodrich, B. F., Co.	Com.	$1.00 q.	Nov. 16	Nov. 9
Goodrich, B. F., Co.	Pfd.	$1.75 q.	Jan. 2	Dec. 15
Hood Rubber Co.	Pfd.	1¾% q.	Nov. 1	Oct. 20
Hood Rubber Products Co.	Pfd.	$1.75 q.	Dec. 1	Nov. 20
India Tire & Rubber Co.	Com.	2% q.	Jan. 1	Dec. 21
India Tire & Rubber Co.	Pfd.	1¾% q.	Jan. 1	Dec. 21
Miller Rubber Co.	Com.	1½% q.	Oct. 25	Oct. 6
Seiberling Rubber Co.	Pfd.	2%	Oct. 15	Oct. 5
United States Rubber Co.	First pfd.	2% q.	Nov. 14	Oct. 20

Akron Rubber Stock Quotations

Quotations of October 19, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	LAST SALE	BID	ASKED
Falls com.	10	10	11½
Falls pfd.	20	....	20
Faultless com.	51	45½	49
Firestone com.	140	....	140
Firestone 1st pfd.	100	100¼	....
Firestone 2nd pfd.	100½	100	100½
General com.	350	....	360
General pfd.	102¾	103	....
Goodrich com.	69	....	....
Goodrich pfd.	99½	....	....
Goodyear com. V. T. C.	46	40	46
Goodyear pfd. V. T. C.	104½	....	....
Goodyear pr. pfd. V. T. C.	104¼	....	....
India com.	175	172	180
Miller com.	241	....	240
Miller pfd.	103½	103½	105½
Mohawk com.	60	....	....
Mohawk pfd.	....	....	85
Seiberling com.	31⅞	31	32
Seiberling pfd.	100	98½	....
Star com.	17	....	15
Star pfd.	30	....	....
Swinehart com.	20	....	17

New York Stock Exchange Quotations

OCTOBER 21, 1925

	HIGH	LOW	LAST
Ajax Rubber, com.	11⅛	10⅞	10⅞
Fisk Rubber, com.	26¾	26	26¾
Fisk Rubber, 1st pfd. (7)	111½	109½	110½
Goodrich, B. F., Co., com. (1)	69¼	67⅜	68¼
Goodrich, B. F., Co., pfd. (7)	99⅛	99	99
Goodyear Tire & Rubber, pfd. (7)	110⅝	110	110⅛
Goodyear Tire & Rubber, pr. pfd. (8)	107½	107½	107½
Kelly-Springfield Tire, com.	17½	16½	17⅛
Keystone Tire & Rubber, com.	2⅜	2⅛	2⅜
Lee Rubber & Tire, com.	16¾	15⅞	16⅛
Norwalk Tire & Rubber (1.60) com.	15⅞	15¼	15⅞
United States Rubber, com.	80¼	76¾	79⅝
United States Rubber, 1st pfd. (8)	107	106¼	107

Boston Woven Hose & Rubber Co.

The following statement submitted by the treasurer of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, shows the condition of the company as of September 1, 1925, and reflects materially improved conditions as compared with the previous year. The statement shows a liberal cash balance, with no bank loans outstanding, indebtedness to banks having been fully paid during the year.

The gross sales for the year amounted to $10,343,050.27, as compared with $8,892,780.12 for the year ended August 31, 1924, an increase of 16⅓ per cent. As a result of this increase profits have been materially larger, showing an earning on the common stock after depreciation, preferred dividends, taxes, and interest, of twice the amount of the dividends paid on common stock.

Assets

Patents			$1.00
Land at cost		$246,996.26	
Buildings	$2,188,130.27		
Less depreciation	412,528.75	1,775,601.52	
Machinery	$2,596,055.79		
Less depreciation	1,030,333.56	1,565,722.23	
Office furniture and cafeteria	$40,098.40		
Less depreciation	10,879.35	29,219.05	3,617,539.06
Employes' notes for stock subscription			73,345.71
Cash		$556,676.67	
Accounts receivable		1,068,800.87	
Notes receivable and acceptances		18,229.53	
Merchandise inventory		2,065,102.10	3,708,809.17
			$7,399,694.94

Liabilities

Capital stock—pref.	$750,000.00	
Capital stock—com. (86,000 shares without par value)	4,300,000.00	$5,050,000.00
Accounts payable (not yet due)	$188,442.08	
Accrued wages	22,953.77	
Loans	None	
Dividend declared payable September 15, 1925.	129,000.00	340,395.85
Reserve for taxes, etc.	$150,000.00	
Surplus	1,859,299.09	2,009,299.09
		$7,399,694.94

HODGMAN RUBBER FACTORY SOLD

All of the assets of the Hodgman Rubber Co., Tuckahoe, New York, in the hands of equity receivers, were sold on October 16 to Max Marx, real estate operator, for $625,500. The second highest offer for the property, that of M. B. Kaufman, a Boston rubber merchant, was for $625,000, but the bid was not all cash, as in Mr. Marx's offer. A third bid of $300,000 for the personal property only, and two small bids for equipment alone, totaling about $10,000 each, were also made by the Surplus Merchandise Corporation. The auctioneer at the hearing was Judge A. N. Hand, sitting in the United States District Court. Representatives of the Hodgman company's $1,000,000 indebtedness joined in approving the final bid of Mr. Marx.

New Incorporations

ADMIAR RUBBER CO., INC., October 3 (New York), $20,000. Incorporators: John Avrudis and I. Fastenberg, 15 Park Row; Charles Kostant, 76 Madison street, both in New York City. Principal office, Brooklyn, New York. To deal in rubber goods.

BOULEVARD AUTOMOBILE CORPORATION, October 20 (Delaware), $25,000. Incorporators: T. L. Croteau; A. L. Miller; M. A. Bruce, all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To manufacture tires.

BRISTOL TRUCK TIRE CO., INC., August 21 (New York), 500 shares, no par value. Incorporators: Joseph W. Rowland, 1038 Clay avenue, Pelham Manor, New York; Fred H. Ayers, 26 Broad street, Lynn; William Wield, 129 Sumner avenue, Springfield, both in Massachusetts. Principal office, Manhattan. To deal in tires and rubber goods.

BROWN RUBBER CO., August 25 (Indiana), $75,000. Incorporators: I. C. Brown; Randolph Mitchell; C. W. Howlett; M. E. Louth; A. I. Epstein. Principal office, Lafayette, Indiana. To manufacture automobile tires and tubes.

GOODYEAR SPECIALTY CO., INC., October 6 (New York), $10,000. Incorporators: R. Tedesco, 912 East 180th street, New York City; H. Blakeman, 272 Brooklyn avenue; A. Kriger, Lawring Place, both of Brooklyn, New York. Principal office, Manhattan. To deal in rubber goods.

HARLEY & LUND CORPORATION, October 22 (New York), $2,000. Incorporators: M. B. Harley, C. O. Lund, both of 154 Nassau street; Harry Miller, 303 Fourth avenue, both in New York City. Principal office, Manhattan. To make rubber tiling.

LICRUDE RUBBER PRODUCTS CORPORATION, October 7 (Delaware), 1,000 shares, no par value. Incorporators: C. A. Cole, W. M. Wahlstad, A. R. Myers, all of 70 Fifth avenue, New York City. To deal in rubber goods.

NEW YORK RUBBER CO., INC., October 27 (New York), 1,000 shares, no par value. Incorporators: A. Y. Tucker, Morris S. Tremaine, both of 32 Spencer street, Buffalo; Schuyler M. Meyer, 20 Exchange Place, New York, both in New York. Principal office, Beacon, New York. To manufacture mechanical rubber goods. (Reorganization of New York Rubber Co.)

THE OAK HILL RUBBER CO. September 14 (Ohio), $60,000. Incorporators: W. A. Byrinder, C. F. Flemming, F. Hermann, all of Akron; Z. G. Oldham, Warren; E. E. Morgan, Oak Hill, all in Ohio. Principal office, Oak Hill, Ohio. To manufacture sponge rubber specialties.

PROPER TRUCK TIRE WORKS, INC., July 3 (New York), $20,000. Incorporators: David J. Marks, Jean Dattel, Sam Lewis, all of 1545 Broadway, New York City. Principal office, Queens, New York. To deal in tires.

SEMITIRE CO., INC., September 8 (Washington), $300,000. Incorporators: A. H. Shoemaker; L. H. Miller; A. L. Flynn; S. J. Haney. Principal office, Seattle, Washington. To deal in automobile accessories.

YONKERS RUBBER STAMP WORKS, INC., August 18 (New York), $10,000. Incorporators: Ellis T. Lobb, 16 Orchard Place; Mildred Allen, care of Yonkers Rubber Stamp Works, Inc., 49 Palisade avenue, both of Yonkers; William P. Allis, 107 Pennsylvania avenue, Brooklyn, both in New York. Principal office, 49 Palisade avenue, Yonkers, New York. To manufacture rubber stamps.

The Rubber Trade in the East and South

The Goodyear Rubber Co. which for thirty-three years has maintained at 787 Broadway, New York, N. Y., its headquarters for selling rubber footwear, has leased an establishment at 134-136 Duane street, also in New York City, the new location providing better facilities for receiving and shipping. The company's plants are at Middletown, Connecticut, and Lambertville, New Jersey. T. A. Maguire is president.

The Ault & Wiborg Co. of New York, 461 Eighth avenue, New York, N. Y., rubber color makers, have established a laboratory for experimentation and research in the application of organic colors to the rubber trade. M. P. Parker, formerly chief chemist of the New York Belting & Packing Co., and later with the Hodgman Rubber Co., is in charge.

A seven-story factory addition which will double the present plant capacity is to be erected by the L. A. Dreyfus Co., Rosebank, Staten Island, New York. The new construction, which will cost approximately half a million dollars, will be devoted to the refining, blending and manufacturing of gutta percha compounds. Ellsworth B. Buck is treasurer.

The Standard Auto Tire Works, 24 Windsor street, Rochester, New York, has been purchased by George H. Strickland and A. W. Martin, the latter formerly the manager in the Rochester territory of The B. F. Goodrich Co.'s branch. The new concern will continue to distribute Diamond tires.

H. H. Schlosser, formerly assistant plant manager of the Hodgman Rubber Co., Tuckahoe, New York, is now factory superintendent of The Elmhurst Rubber Co., Elmhurst, New York.

The Hewitt Rubber Co., Buffalo, New York, is broadcasting a series of educational entertainments, from WGR, one of America's most powerful radio stations. The first of these half-hour programs was given October 16.

H. MacKirdy, managing director, and F. C. Bateman, production superintendent of Dunlop Rubber (Australasia) Ltd., Melbourne, Australia, were visitors at the American Dunlop's Buffalo plant, the ninth and largest division of the Dunlop world organization. Before returning to Melbourne, Mr. MacKirdy will visit the principal rubber manufacturing plants on the Pacific Coast.

Production and sales by The Seamless Rubber Co., New Haven, Connecticut, rubber manufacturers have shown during the first nine months of 1925, a substantial increase over the corresponding period of 1924, while business is in some respects better than for the past two or three years. F. O. Williams is president.

The Philadelphia Rubber Works Co., rubber reclaimers, Akron, Ohio, and Philadelphia, Pennsylvania, are considering the construction of a plant in the vicinity of Philadelphia, Pennsylvania. With the completion of the plans work on the new factory will begin at once.

Edward D. Kilburn, vice-president and general manager of the Westinghouse Electric International Co., and Walter S. Rugg, general sales manager of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, have been named as vice-presidents of the latter company. Mr. Kilburn will also be in charge of sales, while Mr. Rugg will take over the direction of engineering activities. Vice-President H. D. Shute will retain direction of the broad commercial activities of the company, and vice-president H. P. Davis will have direction over the entire manufacturing activities of the company including the radio business and broadcasting.

The Parkland Tire & Rubber Co., 26th and Howard streets, Louisville, Kentucky, has been organized to manufacture "Bilt-Rite" and "Cumberland" cord tires and balloon casings in all popular sizes. The new company employs 100 men and plans to produce 500 tires daily. Executives include: Henry W. Imorde, president; John D. Cary, vice-president; A. F. Faure, secretary and treasurer; and Herbert W. Lantz, factory manager.

The General Tire & Rubber Co., Akron, Ohio, has appointed T. L. Moore as its southern manager of transportation sales. Mr. Moore was formerly southern district manager, with headquarters at Atlanta, Georgia, he having been succeeded in that capacity by H. D. Taylor.

Sidney L. Weller, formerly rubber chemist and compounder for the Lee Tire & Rubber Co., is now acting in a similar capacity for the E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware. Mr. Weller will study the use and application of organic accelerators, synthetic colors and pigments in rubber products. In addition he will act as a consultant to consumers of du Pont products.

The Goodyear Tire & Rubber Co., Akron, Ohio, is constructing a new building to house its Memphis, Tennessee, branch, to be ready for occupancy January 1. The new structure is located on Linden avenue, close to the heart of the city's automotive district. P. J. Massey is branch manager.

The India Tire & Rubber Co., Akron, Ohio, has opened a branch in Jacksonville, Florida, under the management of B. B. Wright, formerly assistant manager of the company's Dallas branch.

The Rubber Trade in New Jersey

Following the announcement of the large tire companies, on October 16, New Jersey manufacturers advanced tire and tube prices 15 to 20 per cent. During the past month all branches of the rubber industry have experienced an increase in business and some plants are operating twenty-four hours a day. The hard rubber factories are busy again due to orders from the radio and automotive industries. There has also been an increase in the demand for mechanical goods and druggists' sundries.

The Rubber Manufacturers' Association of New Jersey held its first fall meeting at the Stacy-Trent Hotel, Trenton, New Jersey, on October 13. Little business was transacted, the entire time following the dinner being given over to the discussion of the rubber situation. Charles E. Stokes, president of the organization, presided.

The Murray Rubber Co., Trenton, New Jersey, reports a large increase in tire output beginning August 1, and the company is operating twenty-four hours a day. The mechanical departments of both the Murray and Empire companies are running to capacity.

The Thermoid Rubber Co., Trenton, New Jersey, continues busy in all departments, particularly in brake lining. Despite conditions in some of the other mills this company has been running to capacity all season and has not been forced to lay off any help.

Several attempts have been made to dispose of the plant of the Bergougnan Rubber Co., Trenton, New Jersey, but Charles E. Stokes, the receiver, has not been able to receive a bid of $250,000, the figure set by the United States District Court.

The Luzerne Rubber Co., Trenton, New Jersey, manufacturer exclusively of hard rubber goods, announces that business is gradually increasing and that the plant is now running normally. The company is working on orders for radio parts.

The Ajax Rubber Co., Trenton, New Jersey, has been running to capacity for some time and expects to keep busy during the coming winter. The production of "Gaspac" inner tubes is gradually increasing.

The Pocono Rubber Cloth Co., Trenton, New Jersey, continues to operate to capacity at its main plant, where rubber cloth for auto tops is manufactured. The company is also busy at its other plant here, where rubber golf bags and rubber covers for tennis racquets are made.

The Near Para Rubber Co., Trenton, New Jersey, is now the only concern of its kind in Trenton engaged in the manufacture of reclaimed rubber, and is operating at capacity to fill orders.

De Mattia Brothers, Inc., Garfield, New Jersey, manufacturers of special machinery for the rubber industry, are building an addition to their plant which will practically double the foundry capacity. A through craneway over the company's yard is also being installed, as well as modern storage bins. The present foundry and machine shop occupy only about one-eighth of the company's plot, leaving room for future expansion. The railroad facilities are said to be excellent.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, which recently took over the tire and tube branch of the Victor Rubber Co., Springfield, Ohio, has increased working hours to fill orders.

Mr. and Mrs. J. Oliver Stokes, of Santa Monica, California, are visiting relatives in Trenton, New Jersey. Mr. Stokes is treasurer of the Joseph Stokes Rubber Co. and has been living in California for several years.

C. Edward Murray, Jr., president of the Murray Rubber Co., Trenton, New Jersey, and Mrs. Murray of Princeton Road, have returned from a motor trip through Canada.

Cable Companies Consolidate Interests

The Safety Cable Co., formerly known as The Safety Insulated Wire & Cable Co., Bayonne, New Jersey, has made arrangements for acquiring at least two-thirds of the preferred and common stock of the Phillips Wire Co., Pawtucket, Rhode Island. Both organizations have been carrying on business for over 32 years, manufacturing and distributing substantially all classes of electrical wires and cables, including weatherproof wire, rubber-covered wire and bare copper wire. Under the provisions of the merger, the management of the two companies will be under the direction of executives of the Safety Cable Co.

Rhode Island Notes

The Bourn Rubber Manufacturing Co., Providence, Rhode Island, has been chartered under the laws of Rhode Island with a capital stock of $75,000 and 11,000 shares of common stock of no par value. The entire business and all property of the Bourn Rubber Co. has been taken over by the new corporation which will continue the business.

LeRoy Clark was elected president at a meeting the past month of the directors of the Phillips Wire Co., Pawtucket, Rhode Island, manufacturer of bare and insulated wire. Other officers were chosen as follows: Vice-president, Walter F. Field; Treasurer, Frank E. George; Secretary and Assistant Treasurer, O. T. Sherman. The board of directors was increased and now includes the following: LeRoy Clark, Walter F. Field, Walter Robbins and Albert M. Read, who will represent the local stockholders it was announced. The Phillips Wire Co. is now controlled by the Safety Cable Co., of New York, and will be operated as heretofore under its own name and with the same organization.

Employes and friends of the Moore Fabric Co., Pawtucket, Rhode Island, enjoyed a dance on September 26, in the new $50,000 weave shed which has just been added to the plant. The new addition is being equipped with modern machinery suitable for manufacturing elastic and non-elastic fabrics, and marks an advancement and expansion of the concern, which began business four years ago.

The officers and clerks of the Industrial Relations Department of the National India Rubber Co., Bristol, Rhode Island, enjoyed a dinner and dance at the Bristol Casino on the evening of September twenty-third.

The Rubber Trade in Massachusetts

Massachusetts rubber manufacturers are optimistic regarding the prospects for winter business. Most branches of the industry are active for this season of the year, and while few plants are rushed, orders appear to be sufficient to maintain operations at the present rate for some time.

Footwear plants are operating five days a week, and any material increase is dependent on weather conditions. The predicted severe winter offers encouragement, as retail stocks are reported low throughout the country. Heel, sole, cement and shoe findings manufacturers report fair business.

Tire manufacturers are busy for this season of the year and are anticipating a growing winter business especially in balloon and bus tires. The latter have become a big and profitable source of new business.

Mechanical rubber goods producers are finding a good market, especially for staple lines of hose, belting, packing, flooring, etc.

Druggists' sundries are more active and insulated wire mills well satisfied with conditions. Waterproof clothing firms are having a fair season.

Among the many interesting papers announced in the program of the convention of the Direct Mail Advertising Association,

held in Boston, October 28 to 30 inclusive, was one entitled "Selling by Mail Throughout the World," by R. W. Ashcroft, of the F. E. Partridge Rubber Co., and the Northern Rubber Co., Guelph, Ontario, Canada.

The Tyer Rubber Co., Andover, Massachusetts, has purchased the machinery and equipment of The Mechanical Rubber Manufacturing Co. of Andover, and will continue the business of covering rubber rolls used in the textile, paper, and other industries.

The American Schaeffer & Budenberg Corporation, Brooklyn, New York, specializing in the manufacture of industrial thermometers, recording gages, etc., has again established sales offices in Boston, Massachusetts, in the Chamber of Commerce Building, 80 Federal street. At the same time the company is transferring its Boston plant to Worcester, Massachusetts, where improved facilities are at hand and where all stocks will be maintained.

The Tyer Rubber Co., Andover, Massachusetts, has practically completed its plans for consolidating its manufacturing departments in new mills on the western side of the city, only the shipping department and the main offices not yet having been housed in the new quarters. The company reports that the business outlook for footwear and druggists' sundries is better than a year ago, while under the present construction plans an increased and more economical production will be possible. Executives of the Tyer organization include: Myron H. Clark, president; Henry G. Tyer, vice-president; Walter E. Piper, treasurer; and George L. Lawrence, Jr., factory manager.

100th Anniversary Dinner to Honor Thomas Wales

One hundred years ago the American rubber shoe industry was founded by Thomas Wales, and it has been proposed to commemorate the occasion by giving a dinner to men associated with the rubber industry of the country. The dinner is planned for some few days before Thanksgiving, and those interested in further details regarding it should communicate with Quincy Tucker, 126 State street, Boston, Massachusetts.

Growth of the Miller Rubber Co.

Like a chapter from the pages of Horatio Alger reads the story of the Miller Rubber Co., Akron, Ohio, which has grown from humble beginnings to an enviable position among the leaders of the industry in the short space of thirty-three years.

It was in 1892 that Jacob Pfeiffer, now president, with a small group of business associates, organized a company to manufacture rubber gloves for surgeons and divided their time between making and selling them. William Pfeiffer, now general manager, soon joined the organization and the remarkable growth of the business reflects the joint endeavor of the two brothers who have so ably cooperated to build it to its present dimensions. In this they have been greatly assisted by the competent and enthusiastic executives with which they surrounded themselves in the early days, and most of whom still head departments in the organization.

The Miller Rubber Co.'s Plant, Akron, Ohio

The business was started with very small capital in a little one-story frame building affording only 1,000 square feet of floor space. At first it was a struggle and there were many discouragements which good business judgment and farsightedness combined to overcome. Every move, every policy, every addition of a new line or of equipment was carefully planned. There was no mushroom growth, but a steady, healthy expansion only so rapid as was justified by business conditions and the demand for products.

Two years after the company began business it moved to its present site. At that time the entire capital was less than $5,000. In 1898 the business was incorporated under the name of The Miller Rubber Manufacturing Co., with an authorized capital of $50,000. In 1910 an authorized capital of $250,000 was granted under the present name, The Miller Rubber Co., and from that time its growth was rapid.

At first the output of the organization was confined to rubber sundries, but soon other lines were added and with the growth of the automobile industry, automobile tires were added to the Miller line some fifteen years ago. In this field in the intervening years the company has always been in the vanguard of progress. Miller lines now include tires, tubes, repair materials, bathing articles, rubber household articles, surgeons' and hospital supplies, heels, toys, mechanical goods, and a large number of other kinds of articles for which there is both a great domestic and foreign demand.

The Miller rubber sundries line is known and esteemed throughout the world. It includes water bottles, fountain and combination syringes, infants' specialties, service gloves, rubber sponges, household aprons, surgeons' gloves, hospital sheeting, bathing caps, slippers and belts, swimming tubes, balls, dolls, toys, trouser belts, sport belts, composition mallets, packing and dozens of other articles.

Today the plant producing these many and varied products covers nearly 30 acres of floor space, and the original company has expanded to one with an authorized capitalization of $60,000,000.

Probably the secret of Miller success lies in the care with which all products are manufactured and inspected before leaving the factory, and the consequent good will among consumers which has been built up through quality faithfully maintained. Following this policy the business is still growing steadily and the future of the company is very bright.

The Rubber Trade in Ohio

Despite elimination of spring dating, which has been relied on in the past to bolster up tire production during the winter months, indications now are that operations of most Ohio rubber factories will continue throughout the winter at 75 to 80 per cent of capacity. Since the first of September there has been a gradual slackening in tire production, the average curtailment being 20 to 25 per cent. Some of the smaller factories, which have been short of crude rubber, are working half time or less, but the large companies do not expect further decline in production during the remainder of the year, and they are preparing for a big business early in 1926. In the Akron district, daily output of tires is now around 100,000 a day, compared with 130,000 two months ago. Even with the 25 per cent curtailment, production is still higher than it was at this time a year ago.

Outside of tires, production has been picking up in other departments, particularly rubber footwear, of which The B. F. Goodrich Co. is one of the largest producers in the world. Footwear departments at Goodrich have been taking on more workers, and soon will be operating at full capacity. Improvement also is noted in sales of mechanical rubber goods and druggists' sundries. Rubber heel production this year has been the largest in the history of the industry.

Following the closing of the Kelly-Springfield plant in Akron, Ohio, Superintendent Louis Miller and most of his assistants, together with a number of workmen, have been transferred to the Cumberland, Maryland plant, of which Mr. Miller will be chief of production. The Akron factory, which formerly employed about 700 men, is to be offered for sale, according to present plans. When running at capacity, output was around 3,500 tires a day.

Immediate installation of new machinery, which will raise the capacity of the Marathon Rubber Co. to 25,000 tires a month, compared with 15,000 at present, is announced by President C. C. Osmun. The company plans to put on the market a heavy duty cord tire of rugged type for heavy road service. A full line of both high pressure and balloon tires is now being made.

Some of the departments of The Adamson Machine Co., Akron, Ohio, makers of equipment for rubber factories, are working with double shifts, while indications are that the present year will represent a considerable advance in business over the years preceding. R. B. Koontz is secretary and treasurer.

The India Tire & Rubber Co., Akron, Ohio, is planning a $50,000 plant addition, which with new machinery, will cost $100,000, and provide for a 50 per cent increase in tire production in 1926. Sales for the first six months of 1925 totaled $2,220,221, a gain of 89 per cent over the preceding period. "Despite the fact that our plant ran to its fullest capacity from January to September we have been constantly behind on orders the past seven months," says President J. M. Alderfer.

George W. Perks of the Federal Farm Loan Bureau has perfected a method of vulcanizing rubber to steel. The first application of the process is a safety device to prevent emery wheels breaking and injuring workmen. A company has been formed to market the device.

The Rubberwear Glove Co., 154 Kenmore Boulevard, Akron, Ohio, manufactures several types of rubber-coated gloves, suited for working purposes in various trades.

For furnishing an idea related to the improvement in equipment which produces the clamps for Ford type rims, Otto R. Stelzer, workman in the Firestone Steel Products Co., Akron, Ohio, was awarded $500 by the suggestion board of the company. All employes of Firestone are invited to submit suggestions at any time.

That workers of the Goodyear Tire & Rubber Co., Akron, Ohio, are satisfied with their present Industrial Assembly was indicated in the election October 14, when 26 of the old members were returned to office. More than 9,000 votes were cast in the election.

William Teeuwen, export department of the Firestone Tire & Rubber Co., has just sailed for Rotterdam, after spending several months at the Akron plant. He will call on distributers and prospective Firestone dealers in Scandinavia and most of the important countries of Europe in the next few months.

P. E. Welton, well-known as a rubber engineer, has taken charge of the rubber division maintained by the McMyler-Interstate Co., Cleveland, Ohio. Associated with Mr. Welton in the development of a line of rubber machinery are some of the former members of the P. E. Welton Engineering Co.

The Seiberling Rubber Co., Akron, Ohio, has taken out a building permit for a new power house. This is the second addition to be started this year, and will house equipment, which with the building will cost approximately $75,000.

The Oak Hill Rubber Co., Oak Hill, Ohio, recently incorporated, is engaged in manufacture of rubber sponges, rubber slab, and various spong rubber specialties, particularly paddings for athletic equipment. The company's plant includes over 15,000 square feet of floor space, and is well equipped for the production of its particular line of specialties. Z. G. Oldham is general manager and C. F. Flemming is factory superintendent.

The factory of the McQuate Rubber Co., Marion, Ohio, is being remodeled to meet present demands, while running twenty-four hours a day, the product being various kinds of mechanical rubber goods. Executives include: Ward McQuate, president; D. D. McQuate, vice-president; Earl E. McQuate, vice-president; Layard D. Miller, treasurer; and Benjamin T. Wyant, secretary.

The Firestone Tire & Rubber Co., Akron, Ohio, has petitioned the State Supreme Court to prohibit the State Industrial Commission from cancelling the rubber company's right to insure its own employes under the Workmen's Compensation Law and to stop the Industrial Commission from attempting to collect an award it had made to the widow of John Winkleman, a former Firestone employe. Winkleman left the Firestone company on March 31, 1922, and died in July, 1924. On application for an award for occupational disease made by Winkleman May 5, 1924, the Industrial Commission granted an award of $6,500 to the widow June, 1925, despite the rubber company's protest that Winkleman had not given proper notice of his disease and had not made his application within two years after contracting it.

Tire Prices Advanced

A fifth general tire price increase has brought the selling level of casings and tubes from 60 to 75 per cent above what it was early in the year, before the crude rubber market began to skyrocket. The Goodyear Tire & Rubber Co., Akron, Ohio, initiated the latest advance on October 17. Most casings were increased 15 per cent, with the exception of a few small sizes, which are 5 to 10 per cent higher, while tubes and solid truck tires were advanced 20 per cent. Both balloons and high pressure types were included. Other major tire manufacturers, including Goodrich, Firestone, Miller, Fisk, United States, Lee and General, revised their lists along the same lines as Goodyear.

W. C. Behoteguy, manager of Goodyear tire sales, points out that the present increase brings tire prices only slightly above the 1923 mark, and still well above the 1920 level. "Crude rubber has advanced during the present year from 40 cents a pound in January to around $1.00 a pound, but tire prices have not advanced in anything like the same degree," said Mr. Behoteguy. "Tire manufacturers have been giving the public the benefit of rubber purchased at lower prices months previous and have consistently held down the price of tires as long as the lower priced rubber held out."

The tire price increase was generally regarded in the industry

as inevitable, but manufacturers held off as long as possible, hoping there would be a change in the crude rubber market. Refusal of the British government to remove restrictions, coupled with a larger world consumption, has kept crude rubber prices at levels which make it impossible for the manufacturers to realize a reasonable profit at present tire prices.

Star's Factory Department Heads

Trade papers frequently list the names included in the executive personnel of factory organizations, but do not often designate those heads of departments responsible for much of the factory's output. In the accompanying illustration are shown some of the men in charge of plant divisions at The Star Rubber Co., Inc., Akron, Ohio. Robert M. Sanderson, at the extreme left, has been associated with the rubber industry for fourteen years, and is now in charge of stock preparation for the Star company. C. H. Bartley is well acquainted with every phase of curing, particularly heavy duty tires, and is now superintendent of the organization's curing room. Interested in efficiency and experimental work, Harry Zelnar has also been long associated with the Star organization, and for five years was in charge of the company's mills, calenders, and compounds. The bus tire department is under the supervision of J. L. Armsey, who has also given much time to research and experiment work in the development of pneumatic tires for buses.

Robert M. Sanderson C. H. Bartley Harry E. Zelnar J. L. Armsey

General, Goodyear, and Mohawk Conventions

The General Tire & Rubber Co., Akron, Ohio, held during the week of September 14 a convention of salesmen, branch and district managers of the organization. On October 1 and 2 there was a similar gathering at the Ambassador Hotel, Atlantic City, New Jersey, when the company's Eastern districts were represented. At the latter conference S. S. Poor, sales manager, presided. The customary 50 per cent increase in production is now being planned for 1926, this development representing a volume of $25,000,000. W. O'Neil, president and general manager of the General organization, said at the recent conference: "Loyalty is the boon companion of success, loyalty not only to your product and your organization, but also to the man you are selling. Spend time with the distributer, check his sales, his credits, his margin of profits, and educate him in the latest thoughts in the tire world."

Executives and supervisors from various plants of the Goodyear Tire & Rubber Co. held their fifth annual inter-plant conference at Akron during the week ended October 4. The California group included Harry Blythe, general superintendent of the Los Angeles factory, R. J. Brady, purchasing agent; J. P. Heaney, cotton mill superintendent; W. R. Urquhart, mechanical engineer; and H. E. Barron, division superintendent. Canadian representatives were E. H. Koken, superintendent of the Toronto plant; R. T. Brown, experiment engineer; H. A. Allman, division superintendent; C. E. Shumaker, personnel manager; L. E. Barrett, division superintendent, and A. M. Hardy, superintendent of the Bowmansville plant. Those from Connecticut were C. W. Young, superintendent of Goodyear cotton mills; and L. S. Hall, superintendent of the Devon mills.

About 200 of the larger distributers and 50 members of the sales force and branch organizations attended the sales conference of the Mohawk Rubber Co., Akron, Ohio. Sales manager J. F. Jones presided. This company's daily production has been breaking records, and the annual report is expected to show sales double those of last year.

The Rubber Trade in the Midwest

George P. Gilman has been appointed president and general manager of the Inland Rubber Co., La Salle and 27th streets, Chicago, Illinois, following the resignation of E. B. McKay. Mr. Gilman will continue his duties as chairman of the board of directors, Mr. Flynn and Mr. Ayer also remaining as treasurer and secretary respectively of the organization.

The Chicago Heights Rubber Co., Chicago Heights, Illinois, is operated by the same executives as the Inland Rubber Co., the latter organization also owning all the stock of the company. Tires and mechanical rubber goods are manufactured at both plants, and business is reported as being very favorable.

A three-story addition to the factory of the Federal Rubber Co., Milwaukee, Wisconsin, will be built at once at an estimated cost of $165,000. F. W. Andree is in charge of construction.

J. H. Appleby has joined the India Tire & Rubber Co., Akron, Ohio, as Chicago and Milwaukee district manager. Mr. Appleby was formerly sales manager of the Denman-Meyers Cord Tire Co.

Press reports exaggerated the loss by fire at the plant of the Gillette Rubber Co., Eau Claire, Wisconsin, as twenty-four hours after the fire the plant was again in operation. Present daily output includes 2,900 casings, from 5,800 to 7,000 inner tubes, and 2,000 bicycle tires. The tire department is running on three eight-hour shifts and future prospects are encouraging. R. W. Hutchens is vice-president and factory manager.

The Indianapolis branch of The Goodyear Tire & Rubber Co., Akron, Ohio, will be located after November 1 in the E. G. Spink & Co. building at 603 E. Washington street. K. J. Boyer is sales manager.

Bondholders of the Perfection Tire & Rubber Co., Fort Madison, Iowa, have a prior claim on all property of this company now in liquidation, according to a decision of the United States Circuit Court of Appeals at St. Louis, affirming the ruling previously laid down by the District Court of Southern Iowa. When the company went into bankruptcy a sprinkler company sought to foreclose on the equipment, but the bondholders claimed that the contract for installing the sprinkler equipment was never filed,

and therefore they had a prior right on all assets. The two courts upheld this claim.

The two-story addition being erected for the Corduroy Tire Co., Grand Rapids, Michigan, will increase plant capacity to 2,400 tires and 10,000 tubes a day. Executives report satisfactory profits and state that new lines of balloon casings and truck-bus tires will be manufactured in addition to the types formerly produced. C. S. Dickey is treasurer and general manager.

The Chevalier Tire Co., Inc., 215 South 11th street, Lincoln, Nebraska, carries a complete line of Goodyear products in order to supply the city of Lincoln and dealers in its vicinity. P. R. Chevalier, president, reports excellent business.

The Overland Trail Rubber Co., Omaha, Nebraska, manufacturer of tires and tubes, estimates total sales for the first half of the present year at $1,012,854.36, with net profits $73,039.70. During this period the factory has been run day and night for most of the time, while additional machinery and equipment to the value of $20,835.37 has been installed. Executives include: G. M. Tunison, president; Carl Sonderegger, vice-president; J. H. Davies, treasurer; and T. E. Huff, secretary.

A new factory building is being erected at Troy, Missouri, by the Climax Specialty Co., 1515-1517 Pine street, St. Louis, Missouri. The company specializes in rubber aprons, crib sheets, and infants' sanitary articles, as well as a line of rubber novelties. E. L. George is general manager.

Meetings of N. T. D. A.

Among those who will make addresses in St. Louis at the coming convention of the National Tire Dealers' Association, to be held November 17, 18, and 19 at the Hotel Chase are R. M. Hudson, chief of the Division of Simplified Practice, Department of Commerce, and Paul L. Palmerton, chief of the Rubber Division. The opening sessions on the first day will be devoted to business, while on the second day important reports of various committees will be made, the visitors taking in the afternoon a trip through the Cupples tire factory. A banquet and entertainment will be held on the evenings of both November 18 and 19.

FIRESTONE DROP CENTER RIM

The Firestone Tire & Rubber Co., Akron, Ohio, has perfected a drop center rim, to which tires can be applied and removed with little effort. No tools are necessary for tire changes.

Specially designed casings and tubes must be used for the rim, the former having a red centering line just above the rim flange. A special tire is also made for drop center rims on Ford cars.

The Gates Rubber Co.

The Gates Rubber Co., Denver, Colorado, is now constructing its twenty-second factory unit, the plans being to complete its erection if possible by February 1, 1926. Following this will be the building of the twenty-third unit, which will enable the organization to triple its present hose output.

The original establishment of the company dates back to 1911, when Charles C. Gates began carrying on business in Denver in a small way as the Colorado Tire & Leather Co. The first factory building, erected in 1912, was soon followed by others, while by 1919 several new units were under construction.

Plant of the Gates Rubber Co., Denver, Colorado

Now known as the largest manufacturer of fan belts in the world, the Gates Rubber Co. also produces 63 different classes of rubber goods, these including tires and tubes, fan belts, radiator hose, as well as steam, welding, air, and water hose, automobile car mats, battery boxes, etc. The output of automobile radiator hose alone is estimated at 3½ miles a day. Gates products are exported to every civilized country in the world, while the tire division alone is represented in every part of the United States by over 4,000 dealers.

The Rubber Trade on the Pacific Coast

Business is excellent in nearly every rubber line on the Coast, the hectic summer buying has subsided, and prospects for winter business are viewed with optimism. Advanced prices made necessary by high cost of rubber are being maintained, however, many large buyers are reluctant to stock up with tires and other rubber goods. There is an impression that crude rubber may soon be cheaper and the cost of finished products correspondingly lower. Purchasers are not easily convinced that the contrary is more likely to happen in the near future. In fact, prices have already been increased in the East, resulting in a general advance in tire prices here. Meanwhile tire repair material makers are busier than ever, and makers and distributers of mechanical goods, druggists' sundries, and other rubber products are doing well.

Robert H. Keaton, president of the Keaton Tire & Rubber Co., San Francisco, California, spent several weeks in the Northwest with C. C. Jack, manager of the Portland and Seattle branches of the company. Mr. Keaton reports that despite high-priced rubber, business during 1925 has increased 40 per cent over the 1924 total.

The Columbia Tire Corporation, Portland, Oregon, of which F. J. Cullen is plant manager, is operating almost to capacity. The company, which has an authorized capital of $3,000,000, of

which one-half has been issued, made its first tire on February 28, 1923. The president is R. A. Wurzburg.

Increased sales for the past six months over a similar period in 1924 are reported by the Coast Tire Co., East 12th street and 50th avenue, Oakland, California. The company, of which J. C. Hughes is president and L. S. Budo vice-president, is equipped to make balloon tires.

The manufacture of benzol for rubber and other industries on the Pacific Coast is being carried on by the Portland Gas & Coke Co., Portland, Oregon. E. L. Hall, general superintendent, reports a steadily increasing demand. The benzol plant cost $450,000 and can treat 900,000 cubic feet of crude oil per hour, using the most up-to-date methods.

The Samson Tire & Rubber Co., Compton, California, is erecting a general sales and executive office building at Eighth and Crocker streets, Los Angeles. Although production has been doubled four times in eight years, the Sampson factory is now operating 24 hours a day to keep up with orders.

Sixty-two per cent more Firestone tires have been sold during the past nine months in the Southwest than for the corresponding period in 1924, according to reports from Firestone's Los Angeles branch. The field sales force has been increased from 21 to 24, and branch operations now cover Southern California, Arizona, and the west coast of Mexico.

Sales are 250 per cent better than a year ago, according to H. G. Coggswell, president of the Paragon Rubber Co., 4827 Huntington drive, Los Angeles, California. The concern, which makes tire repair material and mechanical rubber specialties, is continually adding mechanical equipment and operating forces.

Business of the Pacific Balloon Co., 186 Blaine street, Riverside, California, for the past year has been excellent, according to Donald Fullerton, president. The plant capacity has been increased and new equipment added during the year. The outlook for the coming year is very encouraging to this western pioneer toy balloon concern.

A daily average output of 6,000 casings and 8,500 tubes was the October record for the Goodyear Tire & Rubber Co. at its Los Angeles plant, and winter production will probably be kept up to that figure, with an increase in the early spring. Vice-president and General Manager A. F. Osterloh left October 13 for a conference with executives of the parent company in Akron, Ohio, from which city John H. Matel, assistant to President E. G. Wilmer, and General Superintendent H. E. Blythe of the Los Angeles factory, recently returned.

The Nu-Air Rubber Company of America has leased the factory building of the Braden Tire Co., Norwalk, California, and has commenced operations. F. C. Roegge is in charge while C. J. Staplefield is the tire manufacturing head. The plant will produce about 2,000 tires a day.

A new process for devulcanizing rubber has been patented by the Rubber Products Company of America, 817 W. M. Garland Building, Los Angeles, California, and factory operations are to be begun in a few months' time. W. H. Yetman is president.

The Western Vulcanizer Manufacturing Co. is moving its plant to 908-912 West Pico street, Los Angeles, California, where the organization will have better facilities for the production of its "Dri Kure" vulcanizing equipment.

The American Rubber & Tire Co., Akron, Ohio, has for some time been establishing warehouse accounts on the Pacific Coast, particularly in the southern sections. At present the company's representative, J. O. Ward, is especially busy in the northern district of California.

A Californian's Rubber Reminiscence

S. H. Woodruff, a prominent Southern California architect, and developer of the exclusive mountain homesite tract, "Hollywoodland," in Hollywood, was formerly interested in rubber. Once when in New York City he closed a contract with the United States Rubber Reclaiming Works to remodel the Cushing Packing House in Buffalo, New York, which they had just bought. He had six months in which to change it into a rubber plant.

Entering Buffalo one day he saw the packing plant of a client, Jacob Dold, in flames; and jumping from the train hurried to offer aid, but was impatiently told to wait at least until the fire was out before seeking a rebuilding job. In reply he told of the contract with the six months' time limit, how he could get Mr. Dold temporary quarters in the Cushing plant for three months, and in the meantime rebuild the Dold plant.

The packer was pleased and the United States Rubber Reclaiming Co. readily assented to the proposition. Mr. Woodruff rebuilt the Dold plant within 90 days and three months later had the Cushing plant ready for the United States Rubber Reclaiming Co.

The Rubber Trade in Canada

Tire and tube price advances ranging from 5 to 20 per cent, and effective October 20, were announced last month by Canadian manufacturers. All Ford sizes of high pressure and balloon tires have been advanced 5 per cent. All other sizes of balloon and high pressure tires, up to the 5 inch inclusive, are 15 per cent higher. Truck pneumatics 6 inches and larger, solid tires and all tubes have advanced 20 per cent.

Prices on rubber lawn hose for the 1926 season are higher than formerly, the advance averages about 5 per cent, but shows considerable increase over last year. Blow-out patches, rubber cement, and other repair materials have been advanced approximately 10 per cent.

The Paramount International Rubber Co. of Canada, Ltd., Farnham, Quebec, is operating to capacity on rubber balls, both inflated, hard and sponge varieties. This firm is affiliated with the Paramount International Rubber Co., Tuckahoe, New York, and manufactures rubber toys and novelties.

T. B. Tomkinson, the new vice-president and general manager of the Canadian Goodrich Co., Ltd., Toronto, Ontario, has for many years been a member of the Goodrich official family in Akron, Ohio, and his past training and experience ensure for the company strict maintenance of Goodrich methods, policy and ideals.

John Westren, general manager of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, was guest of honor at a dinner given by the directors of the Central Y. M. C. A., Toronto, to mark more than twenty-five years of constant devotion to its work. He was presented with an illuminated address thanking him for his efforts to make life better for thousands of men and boys in the city of Toronto. Mr. Westren said that the Y. M. C. A. was one of the great forces for good in Toronto and that he had personally derived as much benefit as he had given.

The Dunlop Tire & Rubber Goods Co., Ltd., Toronto, showed at the Canadian National Exhibition held in Toronto a tennis ball in which a gas filled sack is utilized to expand the ball in the curing mold. It is claimed that it fulfils the rigid test demanded by the Tennis Association. The rubber tiling in the kitchen, bathroom, and laundry of the model home shown at the same exhibition was supplied by the Dunlop company.

The "Bubble Boat," a rubber novelty made in Canada by the Dominion Rubber System Co., Ltd., Montreal, was shown at the Canadian National Exhibition at Toronto.

The Jem Rubber Co., 3723 Dundas street, West, Toronto, Ontario, is now supplying gas balls in various colors, return balls, and sponge balls for the Christmas season. J. H. Johnson and Mr. Meadows are the executive heads of this concern.

An advertising campaign is now in preparation for the Federal Machine & Rubber Co., Ltd., Toronto, Ontario, manufacturers of velvet rubber half soles.

The Rubber Trade in Europe

Great Britain

THROUGHOUT the past few weeks more or less feverish conditions have prevailed in the British rubber industry. There has been a tremendous rush by the general public to buy rubber shares, while rumors of the delay of a ship carrying 3,000 tons of crude rubber or the possibility of a change in the restriction policy have been sufficient to cause a rapid rise or fall in rubber prices. Looming too in the background is the threatened shortage of supply. Meanwhile planting programs are being suggested to the British industry, one declaring that 1,500,000 additional acres should be put under cultivation, another stating that 1,715,000 more acres will be necessary.

Rubber Share Boom

The continued high price of rubber, the announcement of substantial dividends by many producing companies, and the demand for the commodity of a much wider character, have stimulated a greatly increased buying of rubber shares, and the development during the past few weeks of a decided boom in the rubber market. While the public is evidently realizing that the industry is now on firm foundations, and is buying accordingly, there is also unfortunately a considerable amount of speculation, and this being the case discrimination is more than ever necessary.

Deputation Again Urges Restriction Removal

Headed by Alexander Johnston, chairman of the India Rubber Manufacturers' Association, a deputation of rubber manufacturers and representatives of the British motor industry called on October 7 at the Colonial Office for the purpose of requesting the government to abolish the Stevenson restriction scheme. The visitors claimed that the restriction measure had well served its purpose but was now working only as a detriment to British trade. W. A. Ormsby Gore, Under Secretary for the Colonies, received the deputation on behalf of the Colonial Secretary and assured the members that he would fully present their views to the Secretary of State, who is giving his personal attention to the rubber situation.

The Crude Rubber Position

The abnormal crude rubber conditions have also aroused much comment, and all sorts of forecasts and panaceas have been suggested. Many of the propositions made have been carefully considered and are based on sound argument. Messrs. Sanderson in one of their recent market reviews said in part:

> At the moment it looks as if for 1925 we are assured of a position which cannot change materially, inasmuch as we must be always dealing with small stocks of crude rubber, and very little reserve of stock for eventualities. In view of the cautious attitude of all sections of the trade, spot and near positions are likely to maintain a considerable premium over forward positions, until such time as a substantial stock is again built up in London. In our opinion this building up of the stock will be a very gradual process.
>
> Interest is now chiefly centered on the 1926 position, when we may expect an increase in stock, and a more normal trading condition, where production and consumption should approximate more closely to one another than has been the case in 1925. Estimates of production in 1926 vary enormously, but even if a full production resulted in the supply seriously overrunning the demand for that period, the fact that during the following two years there could be no serious increase in crops would automatically help to maintain prices of 1926 at a fairly reasonable level.

Some interesting statements pertinent to crude stocks and reclaims were also made by Frank Copeman, presiding as chairman at the sixteenth annual meeting of the Eastern International Rubber and Produce Trust, Ltd. Mr. Copeman said in part:

> Crude rubber stocks are at present at a dangerously low level but there are many indications that we shall experience a gradual and necessary replenishment. This does not mean, however, that we shall have prices again brought down to an unremunerative level, but it seems unreasonable to suppose that present prices will continue for any long period.
>
> It would be regrettable if high prices compelled the manufacturers to alter their mixings by using more reclaimed rubber, or substitutes. The point I want to force home is that the use of a larger quantity of reclaimed rubber, or of substitutes—even as a temporary counter against high prices—is dangerous to the ultimate welfare of the plantation industry. If manufacturers in the United States were to decide, even temporarily, to reduce the quantity of pure rubber used, for a time at least we should find stocks again becoming unwieldy, with a consequent fall in price to an unremunerative level. I do not think such a state of things is likely to come about, as the quantity of rubber coming forward during the next few months is such as is likely to bring down the spot price of rubber to a reasonable level, and thus render the increased use of reclaimed rubber and substitutes both unnecessary and inexpedient. During the next two or three years I do not anticipate that manufacturers will have any difficulty in filling their requirements at prices which are satisfactory to them, and at the same time profitable to the producers. Beyond two or three years I would not care to hazard a guess as to the position. As I have indicated, I hold the opinion that increasing stocks will, for a time at least, keep prices within reasonable limits, but what of the more distant future?

Institution of the Rubber Industry

At the first meeting this season, on September 14, of the London Section of the Institution an interesting paper was read by W. B. Wiegand, who took as his subject "Some Tendencies in Rubber Compounding." At the close of the paper Dr. Philip Schidrowitz, as chairman, opened the discussion, in which a number of well-known rubber men took part.

On October 2 a social evening was enjoyed by members of the Institution, the president, Sir Stanley Bois, receiving at the Australia House, Strand, London.

At the last annual meeting of the Rubber Shareholders' Association a scheme for amalgamation with the Institution of the Rubber Industry had been unanimously adopted, and at the reception the new members met with a cordial welcome.

Members were also invited by Dr. Van Rossem to visit, on October 9, the Rubber Research Laboratories at Delft, Holland. The visit included an opportunity to see some of the other interesting features of this famous Dutch city.

Motor Show and Other Exhibitions

The Motor Show, held in London, October 9 to 17, is said to have been the most important exhibit of the kind ever held in Europe, when sales broke all records and within half an hour between $75,000,000 and $100,000,000 worth of contracts for vehicles are said to have been signed. About twenty rubber manufacturers had leased stands, and took prominent part in the displays. Among them were the Firestone Tire & Rubber Co., Ltd., which showed full size balloon and high pressure gum dipped tires, and red tubes; Pirelli, Ltd., featuring "Superflex" balloon tires and inner tubes; and the British Goodrich Rubber Co., Ltd., which displayed tires made at their Leyland factory as well as a wide range of foot pumps and rubber accessories.

A number of well-known tire manufacturers also participated in the exhibits at the Cycle and Motor Show, held at Olympia from September 21 to 26. The increase in rubber prices is a disturbing feature however, and caused uncertainty in connection with the placing of contracts for the coming year.

The Shoe and Leather Fair, held October 5 to 9 at the Royal Agricultural Hall, London, was the twenty-sixth occasion of

the kind, and was fully representative of the various uses of rubber for footwear. Thirty British manufacturers participated in the exhibit, among them being the North British Rubber Co., Ltd., which displayed a complete line of crêpe sole sport shoes and crêpe bathing sandals, as well as rubber boots. The company's patent process of vulcanization, ensuring that the soles are permanently secured to the uppers, was employed in the manufacture of the white crêpe soled shoes, and also for the bathing sandals, which were shown in great variety. Other sport shoes included one variety having a new grid sole with splendid gripping tread, while the exhibit also contained plimsolls, gym shoes, footholds, overshoes, Parafoot all-rubber shoes, winter sports footwear, as well as rubber boots of every description, the latter class including a new limp rubber boot of the Cossack pattern which is being introduced this season.

Trade in Waterproofed Garments

There is a very active demand in Great Britain for cheap to medium-priced waterproofed garments. Among these the "leatherette" coat, a surface-proofed garment, is especially popular, although there are many varieties of surface-proofed goods now being shown which are attractive in style and color as well as reasonable in price. Artificial silk coats in shot cloths are still selling well, while a good turnover is being done in children's cheap light-weight coats and capes, as well as in boys' and girls' black polished mackintoshes. Wholesale houses also report numerous orders for men's mackintoshes, although there is little demand for rainproofed tweed or gabardine coats.

British Rubber News

The Avon India Rubber Co., Ltd., Bradford-on-Avon, has purchased the plant and business of Birsco, Ltd., and removed the entire equipment to its factory. The Avon organization specializes in the manufacture of sponge rubber goods.

Messrs. Buckleton & Co., Ltd., 13 Rumford street, Liverpool, are English agents for rubber latex, manufactured under patent rights dated May, 1921. Mr. Buckleton is planning a business trip to the United States.

J. W. Reeves, for a number of years manager of the rubber trade department maintained by Jaeger & Co., began business as a dealer on his own account during July of the present year. He has now become associated with F. Clyde Jeavons, formerly general manager of the Ledbury Rubber Estates, Limited, F.M.S., in the establishment of a company to be known as Reeves & Jeavons, Ltd. The new organization will carry on the business formerly maintained by Mr. Reeves.

The patent rights held by Kaye's Rubber Latex Process are said to have been sold to the United States Rubber Co. Kaye's Rubber Latex Process, Ltd. was formed in 1922, acquiring the patent rights for the use of latex in papermaking.

The International Rubber Manufacturing Co., Ltd., The Camp, St. Albans, is producing a variety of sponge rubber upholstery, consisting of strips of sponge rubber laid at right angles to each other with intervening spaces, the whole enclosed within a cover of leather or Bedford cloth. Such upholstery is being marketed by Collier Tires, Ltd., Lower Belgrave street, London, S.W.1.

MacBeth Patents, Ltd., Mere Green, Four Oaks, Birmingham, is marketing a pump especially suited for the inflation of balloon tires and which has the unusual feature of being operated by both feet. It may be worked in the ordinary way by one foot, but the employment of both feet means 100 per cent increase in inflation speed. This pump weighs only 9½ pounds, and sells at £2 9*s* 6*d*.

BRITISH EXPORTS FOR AUGUST OF AUTOMOBILE CASINGS numbered approximately 66,000, value £174,532. The leading markets were the Irish Free State, Sweden, Norway, the Netherlands, and Denmark. Similar exports from France were estimated at 2,264,400 gross kilos, the most important customers being the United Kingdom, Belgium and Luxemburg, Italy, Switzerland, and Spain.

Germany

Industrial conditions in Germany continue to cause anxiety. Strikes, decreased local consumption and lower exports have helped to put more factories in all lines on a part-time working basis where the result was not a complete closing down. The reaction is felt in all industries and the rubber branch is no exception. Not only are many of the newer firms in difficulties, but also quite a few of the older, well-established houses are having a hard time to meet conditions. The high price of rubber, of course, is not assisting in making matters easier now when there is a general clamor to have prices cut down.

Basic conditions in the rubber trade are sufficiently well reflected by the means adopted to meet the situation. Financial stringency and the fear that the crude rubber market will drop as suddenly as it rose dictate a hand-to-mouth policy of buying among manufacturers. Dealers are holding aloof in hope that the expected reduction in prices of manufactured goods will take place shortly. The man in the street turns over every *pfennig* ten times before spending it and then as often as not decides upon doing without. All along the line credit is demanded or offered as bait to prospective customers, so that even the private individual can buy rubber goods of almost any description on the instalment plan.

Abuses in connection with the obtaining of credit are not wanting and are the subject of frequent discussions in which it is pointed out that numbers of new firms, of more than doubtful standing, would never have come into existence were it not for the fact that they know that, after a few initial cash transactions, many manufacturers can be led to grant credits.

The Autumn Fairs

Leipzig, Breslau, Cologne, Kiel, all have just held their annual autumn fairs and the results from the first three at least are dishearteningly similar—fewer exhibitors, visitors, and orders. At Leipzig, some old, well-established firms that had never before failed to exhibit, were absent this time. However, quite a few novelties were shown. The rubber reducing corset has made its entry in Germany too and at Leipzig could also be seen rubber belts, bust confiners, binders, under bodices of rubber, rubber combined with silk, flannel, or linen. Rubber coats which copy cloth and velvet models in cut, style and color, as far as possible, were, of course, only new in so far as the styles were new.

As usual, there was a fine display of rubber toys. Character dolls and animals in brilliant colors, rubber doll-heads to be mounted onto bodies of other materials, figures of saints, Mah-Jong sets, etc., were shown in great variety. Particularly attractive were the rubber dolls' rooms in which were to be found all the doll requisites, as nipple, teething-ring, rubber apron, garters, rubber shoes, caps, panties, and other garments of rubber or of other material combined with rubber. Rubber balloons have an unusual vogue at present and manufacturers presented new models and flying birds, butterflies, May-bugs, etc., fluttered about everywhere. For the kindergarden there were adding-frames in which the heads were of hard rubber in various bright colors; for the home were shown curtain and shade tassels of rubber in various colors. Whether intended for use or for ornament, most lifelike rubber eyes certainly deserve to be mentioned.

Mannheimer Rubber Co.'s 60th Anniversary

The Mannheimer Gummi-Gutta-percha-u. Asbestfabrik A.-G., Mannheim, has just celebrated the 60th year of its existence. This firm, which is one of the oldest in the German rubber industry, was founded in 1864 by Americans for the manufacture of hard rubber and celluloid goods and up to 1885 was known

as the Amerikanische Gummi-und Celluloidwaren-fabrik. Later the celluloid factory was taken over by the Rheinische Gummi-und Celluloidwarenfabrik, Mannheim. At first only hard rubber combs and ornaments as brooches, earrings, etc., which were very popular at the time, were manufactured. The demand for this type of jewelry was so great that the firm employed some 600 workers for these goods alone.

In time surgical, technical and electrical hard rubber goods were added. As early as 1870 soft rubber technical articles were taken up and now the firm is able to supply all needs in this direction. The manufacture of asbestos goods was undertaken in 1885 and at present the firm enjoys the very best reputation for this type of wares.

The firm is now adding a five-story building to its factories which will be ready about March of the coming year. The capital was 1,126,800 marks in 1890; during the years of inflation this was gradually increased to 25,200,000 marks. In January 1924 finances were put on a gold-mark basis and the capital is now 1,205,000 marks. While of late dividends have not been very high, the firm's average is 10 per cent.

Italy

The importance of Italy as a manufacturer and exporter of pneumatic tires and tubes is constantly growing and Italian tires are to be found in more and more foreign markets. During the first half of 1925, exports of tires and tubes came to 4,349 metric tons as against 3,220 metric tons in 1924. Great Britain is Italy's best customer for these goods although her purchases have shrunk from 70 per cent of the total exports two years ago to less than 25 per cent at the present time.

Denmark

Judging by recently published figures concerning Denmark's rubber trade during 1924, demand for rubber goods is increasing. Thus imports of crude rubber rose from 360 tons in 1923 to 472 tons in 1924. Then the total value of the turnover of the Danish rubber factory, De Forenede Gummi & Luftringefabriker, Schonning & Arne, was 4,200,000 crowns instead of 2,900,000 in 1923. Finally imports of foreign rubber goods show a considerable increase over the year 1923 as may be seen in the following table.

	1923		1924	
	Tons	Crowns	Tons	Crowns
Automobile and motorcycle casings.	936	6,721,000	1,306	8,933,000
Automobile and motorcycle tubes.	133	834,000	194	1,055,000
Solid tires	243	652,000	289	854,000
Bicycle casings...*number*	635,000	1,785,000	675,000	2,292,000
Bicycle tubes ...*number*	523,000	418,000	750,000	799,000
Footwear ...*tons*	199	.....	291	.....
Other rubber goods...*tons*	474	2,216,000	569	2,738,000

The chief foreign sources of tires and tubes for automobiles and motor-cycles were America, England and France, competition being very keen in these goods so that Danish makes were kept well in the background. However, more bicycle tires of Danish make were sold than of foreign origin despite Germany's policy of dumping this type of tire. Most of the technical rubber goods imported in 1924 came from Germany at prices that must have been below cost.

Foreign competition is making things difficult for the domestic rubber industry which, after the failure of the A/S. Dansk Afrulkaniseringsfabrik, Kjöge, specializing in rubber footwear, consists of two factories: De Forenede Gummi & Luftringerfabriker Schonning & Arne and the Skandinavisk Gummi Compagni.

The Rubber Trade in the Far East

Malaya

On November 1, another 10 per cent will be added to the exportable allowance of rubber, bringing this to 85 per cent of standard production, and statisticians are figuring the probable demand and supply for the fourth restriction year. Consumption forecasts run up to 630,000 tons and while estimates of production in some cases are about equal to those for demand, there is much doubt as to whether the amounts looked for from Malaya and other eastern centers will in actuality come up to expectations.

This is particularly uncertain as far as Malaya is concerned, for it should be remembered that the possible yield cannot be considered without taking into account the available labor supply. And in well-informed circles it is known that estates have all they can do to meet their present allowance with the labor at their command.

If this was the case when the allowance was 75 per cent it is not difficult to understand that a shortage of labor will prevent planters from getting their full quota of rubber from their trees. In fact there already seem to be some smaller estates which are unable to take advantage of present high prices precisely on account of their lack of men.

This shortage of labor is to be traced back to the slump period when a good many estates had to let a greater or lesser number of their coolies go and a large percentage returned to India. Of course, there were estates that could afford to keep their labor force intact and they did so but they were not in the majority. And now when the exportable percentage has been increased, there are barely enough coolies available to do the necessary tapping.

But there is another point to take into consideration. During the slump, daily tapping was practically universal in Malaya. Since then, however, planters have adopted the alternate daily system of tapping and it is not likely they will revert to the former method, particularly in view of the labor situation. With alternate daily tapping only 85 per cent of the possible crop to be obtained by the daily method is harvested, but the reduction in labor required and the subsequent decrease in tapping charges, to say nothing of the benefit to the trees, more than make up for the difference in yield.

Therefore, in view of all these circumstances, it is the opinion of experienced planters that Malaya will hardly be able to produce more than 90 per cent of its permissible quota when the amount to be released in 1926 reaches 100 per cent of standard production.

So much for Malaya. As regards the Netherlands East Indies, the second source of plantation rubber, it is not thought probable that any considerable increases are to be expected from this source, either of native or estate rubber. On the contrary some people even look for a decrease in the exports of the former article as it is held that the ruthless tapping on the one hand and lack of labor on the other will sufficiently check increases from this quarter. To be sure the same thing was said last year and the year before, but native shipments for 1925 have nevertheless doubled as compared with those of 1924.

There has always been a strong suspicion that a good deal of so-called Dutch native rubber was smuggled Malayan rubber. To what extent these suspicions are well-founded ought to appear shortly, since with the prospective increase of allowable exports to 85 per cent there would be little reason or benefit in smuggling and its practical cessation may be counted on. In fact it would seem that there is something of a lull in the activities of the smugglers. Statistics after November, 1925, should make interesting reading as it ought then to become clear what the extent

of smuggling was and consequently, how much Malaya actually restricted during the first three years of restriction.

Uncouponed Stocks

As things have developed, the fears entertained concerning the release of 6,000 tons of uncouponed rubber were unfounded. This amount was not all thrown on the market at once. Indeed, some of the large dealers and manufacturers show no disposition to export their uncouponed stocks which, it now appears, are required for use in the ordinary course of business. This is rather curious considering the clamor that was made some months ago to have this very rubber released for export. From July 23 to August 15, 1925, only 1,777 tons of uncouponed rubber had been exported from the Federated Malay States. Of this amount 1,644 tons were shipped after payment of duty at the rate of 42 cents (Straits currency) per pound and 133 tons by the purchase of export rights. There now remain 3,127 tons of this uncouponed rubber in the Federated Malay States, 61 tons in the Straits Settlements, 1,158 tons in Johore and 24 tons in Kedah. This rubber may now all be exported upon payment of a duty of 42 cents per pound.

Restriction Statistics

During August, 1925, total rubber exports from Malaya amounted to 27,753 tons against 22,133 tons in August, 1924. The quantity exported during the period January-August, 1925, was 197,179 tons instead of 167,614 tons in the corresponding period of 1924. Incidentally the value of the rubber exported during 1925 increased to $374,056,000 from $160,236,000 in 1924.

The above figures include imports of rubber from countries outside of Malaya. In August, 1925, this rubber amounted to 12,025 tons and comprised 1,373 tons of dry smoked sheet, 477 tons dry crêpe and 8,368 tons wet unsmoked sheet, 731 tons wet scrap and 1,074 tons wet lump. In August, 1924, the amount was 9,776 tons.

The amount imported during the first eight months of 1925 was 101,254 tons, a substantial increase over the quantity for 1924 which was 66,733 tons.

Malayan Notes

Since restriction was enforced in November, 1922, the average prices obtained for rubber during each quarter were as follows:

Quarters	Pence Per Pound	Export Per Cent of Standard
1	14.285	60
2	16.856	60
3	14.242	65
4	14.944	60
5	14.175	60
6	12.917	60
7	10.974	60
8	14.632	55
9	17.998	50
10	19.356	55
11	38.469	65

Since American manufacturers have threatened to use more reclaimed rubber, it has been suggested here that the names of manufacturers using reclaim should be listed and their tires boycotted.

The *Straits Times* suggests that Malaya should develop forest reserves of rubber to be tapped in times of scarcity and left alone otherwise, thereby helping to stabilize prices at 1*s* 6*d* to 2*s*. The same paper offers for consideration by the Imperial Government the suggestion that when the real shortage comes, the British manufacturer should have a little special consideration —"free export of British rubber to British possessions, special export duty on export of British rubber to foreign countries."

Burma

From January to July 3, 1925, the amount of rubber that left Rangoon totaled 48,904 cwts., which is almost double the 1924 shipments aggregating 25,122 cwts.

Netherlands East Indies

The fact that British planters have not attempted to benefit more by the high prices for rubber, at present prevailing, by shipping more than their quota of rubber under payment of the higher tax, leads to an interesting point of view regarding restriction.

J. N. Burger, the well-known Dutch rubber man and staunch anti-restrictionist, holds that it was not primarily the low prices that rubber sold at during the slump that brought about restriction, but the condition of the trees.

In the boom period of 1910-1911, he explains, numbers of companies were established which held out golden promises to investors based on impossible yields to be obtained from areas planted too closely. And the trees were over-tapped in an effort to approximate the promised yields, but of course in vain.

Then came the slump period and after a time the companies found that they had no money to go on with and that they had used up too much bark. It became imperitive to save money by dismissing labor and to save bark by reducing output and so restriction had to be enforced to give the trees a chance to recover.

Formic Acid for Coagulating Rubber

For some time past experiments with formic acid for coagulating instead of acetic acid have been carried out by the experiment stations and private companies. It has been found that half the quantity of formic acid, as compared with acetic acid, is necessary and since the price per gallon of both acids is about the same, formic acid is that much cheaper. Rubber prepared with formic acid showed the same color as that made with acetic acid, it dried as rapidly and the time for smoking sheets was unchanged.

Tests at the Central Rubber Experiment Station demonstrated that the inner qualities were practically unaltered by the use of formic acid; only the plasticity was somewhat greater, which is considered rather a favorable change. Therefore, the experiment stations have declared there is no objection to using formic acid providing it has a content of 85 per cent or higher and is free of formaldehyde or other harmful substances.

Netherlands East Indies Notes

The rubber industry here is now of almost as great importance as the premier industry—sugar. The net rubber output for 1925 is figured at 184,593 tons—106,916 tons plantation and 77,677 tons dry native rubber, the estimated value of which is around 369,186,000 guilders. The value of the sugar crop for 1925 is put at 370,000,000 guilders. Some natives are beginning to realize that careful preparation of their product means a big difference in the price to be obtained. In a native paper this is emphasized and the special points to be considered in working for higher prices are mentioned. It is also suggested that since parcels to fetch better prices must be at least 5 tons and as the individual native holdings cannot produce that much, estates should combine and sell collectively.

Exports of plantation rubber from Java and Madura during June, 1925, came to 4,253,000 kilos as against 2,957,000 kilos for June, 1924. During the first half of 1925 shipments totaled 23,427,000 kilos, instead of 20,814,000 kilos in 1924.

Java and Madura shipped 11,416 kilos of plantation gutta percha during the first half of 1925, which is a considerable decrease from the 54,481 kilos exported in 1924. Jelutong exports for the six months ended June, 1925, were 3,830 kilos.

In June, 1925, 32,663 automobile tires were imported into Java and Madura as compared with 15,954 in June, 1924. For the six months ended June, 1925, the number came to 164,806 against 128,500 in the first half of 1924. The June, 1925, imports of bicycle tires showed a similar increase, the number being 71,059 instead of 19,793 in June, 1924. The figures for the first half of 1925 and of 1924 were 362,219 and 235,609 respectively.

BRITISH NORTH BORNEO

The British North Borneo Rubber Trust, Ltd., reports that receipts from rubber for the past business year were £1,972 or 35 per cent better than for the year before. A dividend of 5 per cent was recommended. The chairman, Sir Ivor Phillips, said that London as the central rubber market was more important today than a year ago since everything pointed to a considerable increase in output and value of rubber. In making forward contracts, he thought, directors should insist, as far as possible, on landed London terms in preference to shipment direct from the Straits to New York. In this way the measure of control they now possessed over the rubber produce market would be greatly increased with far-reaching benefit to themselves and their trade generally.

He also took up the matter of publishing intimate details of transactions and outputs by producing companies. Such publication, he declared, was merely playing into the hands of the consumers. No industry disclosed as much of its business as the rubber planting industry and he hoped that this practice would cease before long.

NATIVE RUBBER IN DUTCH BORNEO

The most important rubber district in the Southern and Eastern division of Borneo is the Oeloe Soengei which, though small in area, produced 80 per cent of the rubber exports of Banjermassin and 75 per cent of the total rubber exports from the division.

The total 1924 yields of rubber from the interior, including estate rubber are found from customs reports to have been: Sampit—162 tons; Banjermassin—16,039 tons; Kota Baroe—417 tons; Tanah Grogot—471 tons and Samarinda—132 tons. There is a loss of about 40 per cent in weight after washing.

The number of rubber trees in the Oeloe Soengei is roughly six to seven millions in tapping and six to seven millions unproductive. The latter are for the most part one and two-year-old trees, while a smaller proportion of trees have run dry. Close planting is the rule and has the advantage of quickly overcoming the ubiquitous and harmful alang weed, while later on it makes for high yields per acre. Tapping is begun in the fifth to seventh year, the system being one daily cut over not more than half the circumference. Bark renewal is good the first time, but by the third time is poor. The results of over-tapping cannot be definitely prophesied yet as the trees had benefited by the enforced rest during the slump period of 1920-1922.

The future outputs, if rubber continues high in price, depend on the behavior of present plantings and the development of the new areas. Possibly a certain portion of the present tappable acreage will gradually stop yielding for a time; however, the new areas planted in 1923-1924 are quite extensive and it may be counted on that, if high prices are maintained, expansion will also be rapid in the future. So that it is expected that while the next few years will see no great increase in output, exports will be double by 1930.

Native rubber is not very important in the other sections of the territory although the Dayaks of Kwala Kapoeas and the Doesoenlands are adding largely to their rubber holdings. Since, however, the Dayaks, unlike the inhabitants of the Oeloe Soengei, are satisfied to tap only enough for immediate needs, their crops will never be as important as those of the Oeloe Soengei people.

MEETING OF COMMITTEE D-13

Committee D-13 of the American Society for Testing Materials met October 5 and 6 at Greenville, South Carolina, when several important technical papers were presented.

Professor George B. Haven's paper, "The Moisture Factor," was a survey of the important work done on this problem by the author. Three methods have been proposed to take care of this troublesome question: First, the entire elimination of the question of moisture by drying the specimens to be tested to a condition of zero moisture; second, the development of a small chamber or compartment in which the fabric to be tested can be "conditioned" or brought to equilibrium in regard to moisture; and third, testing the fabric at any ordinary condition of humidity and then correcting the results after determining the actual amount of moisture present.

In view of the practical difficulties inherent in the first and second methods, the author considered particularly the third method, pointing out that its value rests in the accuracy of the tables by which the correction is made.

L. H. Dewey of the United States Department of Agriculture spoke briefly on Arghan. He referred to the fact that ramie and flax twist clock-wise while they are drying and all other long fibers twist in the opposite direction. He regards this as a simple test for differentiation of long fibers.

The fiber commonly known as Arghan, the botanical name of which is *Pita floja*, is also known as Honduras silk. It has remarkable strength and great length of fiber, going as high as 10 feet which precludes its possibility as a cotton substitute.

F. J. Hoxie of the Warwick Mills, Rhode Island, in the course of a talk on "Micro-Technique of Textiles," exhibited a series of extremely interesting photo-micrographs. He prefaced his talk by remarks on the fundamentals of research work in textiles and emphasized particularly the need of organized research by the industry as a whole.

INTERNATIONAL TIRE TRADE INCREASES

During the first half of 1925, according to P. L. Palmerton, chief of the Rubber Division, Department of Commerce, the total number of automobile casings exported from the United States, Canada, France, Italy, the United Kingdom and Germany numbered 3,142,000, as compared with similar shipments for the entire year 1924 totaling 4,927,000. The monthly rate thus far this year is 523,670, a gain of slightly over 27.5 per cent over the monthly rate throughout 1924, which was 410,580. This remarkable advance might be thought to indicate overstocking by foreign markets, but in general these statistics represent the real extent to which the demand for tires has increased.

From the tabulation following it will be noted that the percentage of total business supplied, respectively, by France, Italy, United States, and Germany has declined; while that of Canada and the United Kingdom represents an increase. France and Italy together supplied 47.5 per cent of the total exports from these six countries in 1924 and only 43.5 per cent during the first half of 1925; the United States and Canada together increased their share of the total business from 38.4 per cent to 40.3 per cent.

The most significant fact indicated by these figures is the decline in percentage of total business supplied by European makes, and the next most noteworthy fact is the increase in British tire shipments, the latter probably due to the gain in British Dunlop trade throughout the world. Although the individual share of the United States in tire trade has declined slightly in 1925, it has been more than balanced by increased exports of American makes from Canadian plants.

EXPORTS OF AUTOMOBILE CASINGS FROM PRINCIPAL PRODUCING COUNTRIES

	1924		Six Months, 1925	
Country	Number	Per Cent of Total	Number	Per Cent of Total
France[1]	1,677,000	34.0	972,000	30.9
Italy[1]	667,000	13.5	395,000	12.6
United States[2]	1,389,000	28.2	869,000	27.7
Canada[1]	500,000	10.2	396,000	12.6
United Kingdom	550,000	11.2	425,000	13.5
Germany	144,000	2.9	85,000	2.7
Total	4,927,000	100.0	3,142,000	100.0

[1] Estimates based on export statistics, which do not show the number of automobile casings exported.
[2] Including exports to non-contiguous territories.

Rubber Patents, Trade Marks and Designs

The United States

September 8, 1925*

1,552,615 Tire inflating valve. Frederick C. Kingston, Los Angeles, California.
1,552,618 Hair curler with rubber member. Emil Richard Klemm, Jr., Chicago, Illinois.
1,552,655 Hard rubber disk for water meters. John Thomson, Brooklyn, New York.
1,552,790 Vehicle spring with rubber blocks. Herman S. Zinsitz, Milwaukee, Wisconsin.
1,552,832 Sole tread of rubber composition. Joseph A. Farren, Newton, assignor to Thomas H. Logan Co., Hudson, both in Massachusetts.
1,552,965 Pneumatic bumper for vehicles. Roland L. Smith, Belmont, Massachusetts.
1,552,991 Golf tee. Eleanor H. Jones, Boston, Massachusetts.
1,553,010 Eyeshield with flexible head gear. George E. Terry and Harry F. Van Trump, assignor to Marvin Wiseman, both of San Francisco, California.
1,553,018 Resilient tire. Luther B. Barth, St. Paul, assignor by mesne assignments to Durkee-Atwood Co., Minneapolis, both in Minnesota.
1,553,099 Carriage curtain window, including a rubber gasket. Lawrence C. Nelson, assignor to Stewart Manufacturing Corporation, both of Chicago, Illinois.
1,553,267 Puncture proof wheel with pneumatic cushion. Adam S. Rockett, Pittsburgh, Pennsylvania.

September 15, 1925*

1,553,436 Tire shoe. Thomas B. Darley, Dublin, Georgia.
1,553,466 Detachable cushion heel. Gerald W. Otterson, Wellington, New Zealand.
1,553,501 Cushion wheel. John Bogdan, Newark, New Jersey, and Joseph A. Anglada, Jenkintown, Pennsylvania.
1,553,520 Kiddie Bronco with rubber buffer. James W. Dougherty, McKeesport, Pennsylvania.
1,553,551 Doll having elastic mask. Charles N. Reese, Wilmette, Illinois.
1,553,775 Combined sponge and soap. Maurice Hertz, New York, N. Y.
1,553,874 Rubber back support. James Harvey Nivens, Salinas, California.
1,553,916 Elastic shoulder strap. James Rose, Galion, Ohio.
1,554,050 Toy balloon. John Queen Slye, assignor of two-thirds to Samuel I. Steinberger, both of Washington, D. C.
1,554,147 Lather-forming device. Robert Hudson Wager, Jersey City, New Jersey.
1,554,148 Lather-forming device. Robert Hudson Wager, Jersey City, New Jersey.
1,554,158 Cushion tire. George Hadrich, Highland Park, Michigan.

September 22, 1925*

1,554,242 Squeegee. Charles H. Tanner, St. Cloud, Minnesota.
1,554,291 Surgeon's glove. George A. Peck, New Rochelle, New York.
1,554,370 Pneumatic tire. Irvin R. Renner, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.
1,554,386 Fountain pen. Lewis M. Tebbel, Spokane, Washington.
1,554,393 Fountain pen. Henry Wensink, Grand Rapids, Michigan.
1,554,397 Hot water bottle. William Robert Beldam, London, England.
1,554,474 Windshield guard. Raymond Walker, Chicago, Illinois.
1,554,487 Valve-stem lock for casings. Joseph Berg, Little Rock, Arkansas.
1,554,489 Boot or shoe. Charles S. Bird, Walpole, assignor to Rubberhide Company, Boston, both in Massachusetts.
1,554,492 Accelerator pedal attachment. James M. Brennan, Los Angeles, California.
1,554,510 Massaging device. Elsie W. Kirby, New York, N. Y.
1,554,560 Cushion heel. William P. Cosper, Milwaukee, Wisconsin.
1,554,580 Heel. Louis Kaplan, New York, N. Y.
1,554,653 Rubber headed arrow. Homer H. Poole, Parsons, Kansas.
1,554,687 Throttle-control device. Sven J. Nordstrom, San Francisco, California.
1,554,769 Combined pen and pencil. Aniceto Visitacion, Brooklyn, N. Y.
1,554,789 Flexible soap holder. Thomas F. and Charles A. Crary, both of Middleport, Ohio.
1,554,837 Soft rubber soap holder. Martin Bock, Maple Shade, New Jersey.
1,554,867 Quick-removable wheel. Thurston Matheny and C. C. Sharp, both of Nelsonville, Ohio.
1,554,926 Pad for washboards. Edward F. Stratton and Henry E. Derbyshire, assignors to Sanitary Co. of America, all of Philadelphia, Pennsylvania.

September 29, 1925*

1,554,991 Powder dispenser. John J. Crowley, Cambridge, Massachusetts.
1,555,013 Valve. Henry Phillip Kraft, Ridgewood, New Jersey.
1,555,032 Elastic fabric. Joseph Siegel, assignor to American Lady Corset Co., both of Detroit, Michigan.
1,555,048 Tire valve connection. William Erastus Williams, assignor to American Steel Foundries, both of Chicago, Illinois.
1,555,049 Automobile disk air-valve device. William Erastus Williams, assignor to American Steel Foundries, both of Chicago, Illinois.
1,555,080 Hose boat. Friedrich Scheibert, Lubden, Germany.
1,555,093 Armor-plate tire protector. Amos A. Wyckoff, Oakland, California.
1,555,110 Fountain pen. Harry P. Fairchild, assignor to Fermene G. Fairchild, both of New York, N. Y.
1,555,145 Paper smoother. John O. Naslin, Seattle, Washington.
1,555,147 Nozzle for inflatable articles. Archibald Nield, assignor of one-half to David Mosely & Sons, Limited, both of Manchester, England.
1,555,148 Closure for football cases. Archibald Nield and George Henry Watts Blick, both of Manchester, England.
1,555,180 Inking pad. Frederick H. Bronner, assignor to Irwin-Hodson Co., both of Portland, Oregon.
1,555,199 Pneumatic vehicle suspension. Rene Gouirand and Marie Julia Track, both of Los Angeles, California.
1,555,373 Air bladder for balls. Max Wilhelm Iden, assignor to August Borchers, both of Hamburg, Germany.
1,555,393 Bath spray. Ferdinand A. Von Hermann, assignor to The Mechanical Rubber Co., both of Cleveland, Ohio.
1,555,418 Shoe decoration. George Colvin Kennedy, Waterloo, Iowa.
1,555,479 Cushion wheel. Joseph J. Morand, assignor to Morand Cushion Wheel Co., both of Chicago, Illinois.
1,555,504 Valve for milking machines. Jean Charles Valdemar Krayenbuhl, Fredericksberg, near Copenhagen, Denmark.
1,555,514 Heel. Peter C. Niemann, West Newton, Massachuetts.
1,555,589 Floating chair with side legs of tubing. Thomas La Farina, New York, N. Y.
1,555,622 Garment with elastic gores. Alfred H. Barlow, Los Angeles, California, assignor to George H. Barlow and Joseph J. Desmond, both of Corry, Pennsylvania.
1,555,625 Door silencer. Frank Beisler and Fred Z. Meyer, both of Philadelphia, Pennsylvania.
1,555,656 Fountain syringe. William H. Gilmartin, Tampa, Florida.
1,555,660 Rim. Otis Hubbard Gray, Ardsley, New York.
1,555,661 Jointed toy figure. Rene D. Grove, Middletown, Pennsylvania.
1,555,708 Catamenial appliance. Emily Holder Morgan Gale, St. Cheverell, England.
1,555,787 Wringer button arranger with elastic belt. Otho M. Otte, Tarentum, assignor to Raydex Manufacturing Co., Brackenridge, both in Pennsylvania.
1,555,788 Button-arranging clothes wringer. Otho M. Otte, Tarentum, assignor to Raydex Manufacturing Co., Brackenridge, both in Pennsylvania.

* Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

September 8, 1925

253,390 Rubber paving block. Jack Sheridan Cowper, South Kensington, London, S.W.7, England.
253,435 Detachable heel. Ladislav Misura, Newark, New Jersey, U. S. A.
253,455 Float or raft for swimming purposes. Nicholas Straussler, 32 St. Swithin's Lane, London, England.
253,464 Suction rolls having rubber coated roll. Charles R. Van de Carr, Jr., Grand'Mere, Quebec, Canada.
253,465 Baby soother nipple. Alhard Christopher von der Borch, Sydney, New South Wales, Australia.
253,530 Corset with elastic straps. The Kops Bros., Ltd., of Canada, Toronto, Ontario, Canada, assignee of Waldemar Kops, New York, N. Y., U. S. A.

September 15, 1925

253,619 Resilient wheel. Charles B. Evans, Chicago, Illinois, U. S. A.
253,622 Inner tube and flap. Edward Fetter, Baltimore, Maryland, U. S. A.
253,632 Pneumatic tire casing. Hans E. Grabau, New York, N. Y., U. S. A.
253,672 Rubber overshoe. Barney R. Nyhagen, New York, N. Y., U. S. A.
253,703 Pneumatic tire fabric. Daniel Michel Weigel, Trenton, New Jersey, U. S. A.
253,749 Rubber boot. The B. F. Goodrich Co., New York, N. Y., assignee of Frederick Henry Martin, Akron, Ohio, both in U. S. A.

Chemical patents will be found on page 80. Machinery and Process Patents on pages 83-84

253,750 Rubber boot. The B. F. Goodrich Co., New York, N. Y., assignee of Frederick Henry Martin, Akron, Ohio, both in U. S. A.

September 22, 1925

253,819 Interchangeable boot and shoe heel. Joseph Gaspar, New York, N. Y., U. S. A.

253,825 Rubber attachment for vehicle springs. Thomas S. Hamilton, Los Angeles, California, U. S. A.

253,952 Pneumatic tire. The B. F. Goodrich Co., New York, N. Y., assignee of Irvin Rodell Renner, Fairlawn, Ohio, both in U. S. A.

253,953 Cushion connection for vehicle construction. International Motor Co., assignee of August H. Leipert and Gustavus Haag, all of New York, N. Y., U. S. A.

253,973 Return ball. The Paramount International Rubber Co. of Canada, Limited, Montreal, Quebec, Canada, assignee of Albert H. Bates, Trustee, Cleveland Heights, Ohio, assignee of Isaac F. Giles, Yonkers, New York, both in U. S. A.

253,996 Life preserver made of flexible rubber tubing. William E. Abbott, Logan Smith, Dennison F. Rease, and Ralph H. Caldwell, all of Santa Cruz, and Lewis J. Fortro, San Francisco, all in California, U. S. A.

254,017 Tire flap. Thomas Arthur Beaney, Poughkeepsie, New York, U. S. A.

September 29, 1925

254,048 Hose supporter. Elwood P. Duffy, Arvada, Colorado, U. S. A.

254,071 Non-breakable rubber button. Hans Kanoffsky, Milwaukee, Wisconsin, U. S. A.

254,115 Umbrella tip guard. George Schlemmer, New York, N. Y., U. S. A.

254,130 Pneumatic tire. Ernest A. Yorston, Vancouver, British Columbia, Canada.

254,174 Flexible coupling. The Goodyear Tire & Rubber Co., assignee of Herman Edward Morse, both of Akron, Ohio, U. S. A.

254,244 Pressure gage valve device. Mary Haag Henemeier, New York, N. Y., assignee of Frank J. Schmidt, Jersey City, New Jersey, both in U. S. A.

The United Kingdom

September 2, 1925

236,610 Tire rim attachment. Rudge-Whitworth, Ltd., J. V. Pugh and G. H. Vernon, Rudge Works, Crow Lane, Coventry.

236,651 Pneumatic printing frames. W. E. Evans, 27, Chancery Lane, London (F. Wagner, 32, Schönebergerstrasse, Berlin).

236,866 Rubber playing card holders. W. H. Pitcher, Wickford Park, Wickford, Essex.

236,869 Overshoe. J. De Noronha, 35, Schadowstrasse, Düsseldorf, Germany.

236,907 Wrappers for pneumatic tires. Ajax Rubber Co., Inc., 218 West 57th street, New York, N. Y., assignee of G. E. Shipway, Noroton, Connecticut, and F. M. Hoblitt, New York, N. Y., all in the U. S. A.

236,917 Moistening air apparatus using a rubber sheet. Universumfilm Akt.-Ges., 1, Köthener Strasse, Berlin.

236,939 Tire deflation indicator. A. Poitrineau, Rue Crois des Vignes, Gennevilliers, and L. Gonsard, Rue des Bas, Asnieres, Seine, both in France.

September 9, 1925

236,986 Telephone receivers. A. Preece, 157, Croydon Road, Anerley, London.

236,987 Windscreen fastenings with rubber buffers. G. W. Pearce & Sons (Brassfounders), Ltd., and A. E. E. Jones, Bromyard Road, Worcester.

236,988 Boot stiffener. British United Shoe Machinery Co., Ltd., and F. Ricks, Union Works, Belgrave Road, Leicester.

236,995 Pneumatic cushion wheels. A. Bates (trading as Willis & Bates), Pellon Works, Springhall Lane, Halifax, Yorkshire.

237,001 Rubber flesh brush. F. H. Carter, Davyhulme Road, Stretford, Lancashire.

237,029 Rubber propelled toy. H. A. Newbon, 4, Kensington Hall Gardens, London.

237,084 Rubber faced paving blocks. H. H. Duke, Moseley, Banksia avenue, Rockdale, near Sydney, Australia.

237,095 Swimming appliances with rubber floats. N. Straussler, 32, St. Swithin's Lane, London.

237,098 Window regulators employing rubber strips. E. C. R. Marks, 57, Lincoln's Inn Fields, London (Studebaker Corporation, South Bend, Indiana, U. S. A.).

237,109 Trunks with edges encircled by elastic band. W. L. Spence, 35, Kenilworth Road, Leamington, Warwickshire.

237,121 Bath gloves of raw plantation rubber. M. M. Dessau, 14, Mincing Lane, London.

237,125 Kite balloons. H. G. Gibbs, 19, Surrey street, Strand, London.

237,133 Pneumatic tire pressure gages. C. S. Munro, 818 Orchard street, Charleston, West Virginia, U. S. A.

237,135 Rubber trimmed umbrellas, etc. D. S. Munn, 18, Leinster square, Hyde Park, London.

237,162 Rolling machines having rubber bands. C. Guedo, 14 Rue Danton, Le Kremlin-Bicêtre, Seine, France.

237,175 Vehicle spring suspensions using rubber blocks. O. Y. Imray, 30, Southampton Buildings, London (International Motor Co., 25 Broadway, New York, N. Y., U. S. A.).

237,186 Gramophones using rubber and elastic bands. L. D. Griffith, Silvington Rectory, Cleobury Mortimer, Shropshire.

237,190 Tools for removing tires and tire covers. T. L. Bryce, 620, Argyle street, Glasgow.

237,192 Cushion tire. H. M. Lambert, 102 Second street, Portland, Oregon, U. S. A.

237,250 Card clothing. Platt Frères, 108 Rue la Fontaine, Roubaix, France.

September 16, 1925

237,278 Reservoir pens. Plastovertrieb, 68 Tegernseerlandstrasse, Munich, Germany.

237,291 Window regulators with rubber head and cushioning device. J. Saoutchik, 46 Rue Jacques Dulud, Neuilly-sur-Seine, France.

237,314 Stoppers with rubber sealing disk. R. W. Penn and R. S. Brown, 46, Victoria street, Westminster, and H. J. Reece, 553, Garratt Lane, Wandsworth, London.

237,316 Artificial larynx with rubber strip. Sir R. A. S. Paget, 74, Strand, London.

237,328 Tin-plate apparatus with rubber covered rollers. G. M. Harris, The Lawns, Witherslack, Grange-over-Sands, Lancashire.

237,335 Oil well swabs with rubber cylinders. B. P. Hoffman and W. G. Bisbee, P. O. Box 273, Bristow, Oklahoma, U. S. A.

237,400 Sound records with layer of compressed rubber. J. D. Cumner, 350, Manisty street, Poplar, London.

237,425 Razor strop using rubber. E. F. Hampf, Svenskhem, Queen's Road, West Cowes, Isle of Wight.

237,434 Tires. Dunlop Rubber Co., Ltd., 1 Albany street, Regent's Park, London, and W. H. Paull, Fort Dunlop, Erdington, Birmingham.

237,437 Weighing apparatus with rubber gaskets. E. C. R. Marks, 57, Lincoln's Inn Fields, London (Toledo Scale Co., Monroe street, Toledo, Ohio, U. S. A.).

237,443 Pneumatic tire. Dunlop Rubber Co., Ltd., 1 Albany street, Regent's Park, London, and T. Norcross, Fort Dunlop, Erdington, Birmingham.

237,472 Reservoir pens. A. Gilbert and Mentmore Manufacturing Co., Ltd., Tudor Grove, Well street, Hackney, London.

237,479 Rubber faced paving blocks. O. Mitchell, 45, Baxter avenue, Southend-on-Sea.

237,482 Rubber surfaced rollers. W. Hales, 98, Inglethorpe street, Fulham, and Patent Textile Rollers (1923), Ltd., 233B, West Ferry Road, Millwall, both in London.

237,486 Rubber device for producing hyperemia. G. Kratzenstein, 14 Tischerstrasse, Dresden, Germany.

237,510 Vehicle springs with cushion connections. O. Y. Imray, 30, Southampton Buildings, London (International Motor Co., New York, N. Y., U. S. A.).

237,531 Telephone instruments employing rubber film. Brandes, Ltd., and W. A. Bartlett, 296, Regent street, London.

237,540 Vehicle wheels. K. Piesch, 1736 Fourth street, New Orleans, Louisiana, U. S. A.

237,565 Tire attachments. H. Perrot, 31 Place St. Ferdinand, Paris, and G. Calvignac, 49 Rue Lannois, Levallois-Perret, Seine, France.

September 23, 1925

237,669 Pneumatic tire. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London, and G. A. Mortimer, Fort Dunlop, Erdington, Birmingham.

237,678 Rubber hand wheel grip. A. G. Barrett and H. H. Burton, Evington Valley Mills, Leicester.

237,727 Displaying apparatus with rubber disks. R. Williams, 66, Laurel Road, Liverpool.

237,741 Inflatable toys. M. M. Von Der Heyden, 14 Fraumünsterstrasse, Zurich, Switzerland.

237,753 Window frames with rubber strip. Mann, Egerton & Co., Ltd., and G. L. Wilford, 5, Prince of Wales Road, Norwich.

237,756 Stoppers with rubber disks. C. A. Shea, 36, Church Road, Homerton, and A. O. Boulter, 49, Cawley Road, South Hackney, both in London.

237,766 Rubber coated bobbins. Brough, Nicholson & Hall, Ltd., and J. Fowler, Leek, Staffordshire.

237,798 Acoustic diaphragms with rubber disks. G. Lakhovsky, 5 Avenue du Bois de Boulogne, Paris.

237,825 Solid tire. W. R. Gillam, Kent Road, Tallmadge, and R. J. Bonstein, 311 Crestwood avenue, Akron, both in Ohio.

237,838 Detachable tread. L. P. Erb and K. Macgregor, Anaconda, Montana, U. S. A.

237,888 Sound reproducing instruments with rubber diaphragms. F. P. Habicht, 18 Fulachstrasse, Schafflausen, Switzerland.

237,921 Shock absorbing sockets with rubber member. Benjamin Electric, Ltd., Brantwood Works, Tariff Road, Tottenham, London, assignees of C. E. Warner, Berwyn, Illinois, U. S. A.

237,933 Depth sounding system employing rubber strips. C. V. Drysdale, J. M. Ford, B. S. Smith and E. V. Mackintosh, Admiralty Research Laboratory, Teddington, Middlesex.

New Zealand

August 27, 1925

52,388 Propeller shaft bearing with soft rubber bushes. William Maxwell Blake, Villa Alba, Tanjong Rhu, Singapore.

52,763 Milk cooling or heating means with rubber sleeves. Robert Axel Forsman, Gordonton, via Taupiri, Waikato, New Zealand.

September 10, 1925

54,361 Cushion tire. Ernest Hibbert, 33 Verner street, Goulburn, N. S. W.

Germany

418,448 (January 27, 1924). Belting, particularly of rubber, consisting of several layers placed one on top of the other. Security Rubber and Belting Co., Chicago, United States; represented by: B. Kugelmann, Berlin S. W. 11.

418,648 (December 22, 1924). Impregnated, tube-like shell of rubber, silk, celluloid and the like for receiving and introducing medications into the cavities of the body. Studien-Gesellschaft für Wirtschaft und Industrie m. b. H., Munich.

418,836 (May 27, 1924). Rubber sole and heel. Josef Böckmann and Alex Kümmel, Lünen a. Lippe.

418,838 (May 16, 1924). Exchangeable rubber tread patch. Friedrich Wilhelm Warrach, Hermann-Seidel-Strasse 8, Dresden-Laubegast.

418,964 (September 26, 1924). Rubber nipple holder for feeding bottles. Gregor Schneider, Tiengen, Baden.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

September 8, 1925, Act of February 20, 1905

202,964 P A L—golf balls. The Schmelzer Co., Kansas City, Missouri.

202,965 FAIRWAY—golf balls. United States Rubber Co., New York, N. Y.

202,967 COLLEGIAN—fountain pens. New Diamond Point Pen Co., Inc., New York, N. Y.

202,974 ACE-EXPERT—Hard rubber combs for the hair. American Hard Rubber Co., Hempstead and New York, N. Y.

202,975 ACE-ARTIST—hard rubber combs for the hair. American Hard Rubber Co., Hempstead and New York, N. Y.

203,105 Word: YARMOGS in fancy outline letters with end of R extended under the M—shoes made of leather and of leather and rubber combined. The Sportocasin Co., Yarmouth, Maine.

September 15, 1925, Act of February 20, 1905

203,176 R & H with word: CHEMICALS beneath—Hexamethylenetetramine, diphenylguanidine, triphenylguanidine, diorthotolylguanidine, etc. The Roessler & Hasslacher Chemical Co., New York, N. Y.

203,181 Words: TRAVEL-ARCH arranged in slight curve, letters becoming smaller at center, beneath this a conventional design enclosing the words: I. Wit and Maker, while the words: Traveler Shoe Co. run underneath—shoes of leather and leather and rubber. The Traveler Shoe Co., Boston, Massachusetts.

203,258 Words: THE SPURS outlined in dots—boots and shoes of leather, rubber, fabric and combinations. John Thomas Read, Northampton, England.

203,263 Enclosed in rectangle the words: "REST WHILE YOU WALK," center of rectangle a network of lines bearing the words: ARCH PROTECTOR SHOE, underneath network the words: COMBINATION LAST—shoes of leather, rubber, fabric or a combination. John Arthur Legg, Pontiac, Michigan.

203,283 Fancy rectangle with word: CALENDAR in large letters in center, beneath which is the word: SHOE—boots, shoes and oxfords of leather, rubber and fabric and combinations. The Huiskamp Bros. Co., Keokuk, Iowa.

203,287 Word: BEACON under which is a representation of a foot beneath this the words: ADJUSTABLE ARCH SHOE—boots, shoes and slippers of leather, canvas or textile material. Hovey E. Slayton, Manchester, New Hampshire.

203,298 TOUCH DOWN WELT—words TOUCH and DOWN inclining upwards, word WELT horizontal with top of letter T lengthened—shoes of leather, rubber and fabrics or combinations. H. W. Merriam Shoe Co., Newton, New Jersey.

203,302 DELMAN SHOE SALON—at right representation of a lady being fitted for shoes—shoes made of leather, rubber, etc. Herman B. Delman, New York, N. Y.

203,367 Representation of a man holding a board, in center of his smock is a circle around which are the words: CONSTANT COMFORT, in the center the figure seven—shoes of leather, rubber or fabric or combinations. Ault-Williamson Shoe Co., Auburn, Maine.

203,376 Triangle bearing the year: 1860 beneath which are the letters T. P. A. P. M., at base of the triangle is the Russian word meaning St. Petersburg—rubber footwear. Société Française Tréugolnik, Levallois-Perret, France.

203,392 DREWS—letters becoming larger at center and whole word enclosed in circle around which are the words: ARCH TRAINER and PORTSMOUTH, O., which are enclosed in an outer circle—boots, shoes and slippers of leather, rubber or fabric. The Irving Drew Co., Portsmouth, Ohio.

203,395 Word: CANTILEVER—curving slightly—rubber heels. Morse & Burt Co., Inc., Brooklyn, New York.

September 15, 1925, Act of March 19, 1920

203,438 VELVET—through center of which runs the word: FINISH—rubber sheeting. Rubberized Sheeting & Specialty Co., Inc., New York, N. Y.

203,462 Square at top of which is the word: KOKOMO, the letter K at beginning of word lengthened to underline the other letters, slanting across the bottom of the square is a representation of brake lining bearing the word: KOKOMO—belting, hose, machinery packing and nonmetallic tires. Kokomo Automotive Manufacturing Co., Kokomo, Indiana.

September 22, 1925, Act of February 20, 1905

203,500 Words: AIR LINE, the letter L enlarged and connected with the word air which is on line above—golf balls. The Golf Ball Corporation of America, Wilmington, Delaware and New York, N. Y.

203,505 WALKER'S—beneath the representation of a boot in which is the word: MASTERARCH—shoes of leather and rubber, leather and fabric, etc. William H. Walker & Co., Buffalo, New York.

203,517 Representation of an owl seated on a branch above which are the words: BIRDS EYE—clothing. Tenzer Brothers, New York, N. Y.

203,518 Representation of four squares heavily outlined in black—golf balls. The Faultless Rubber Co., Ashland, Ohio.

203,523 Words: AERO CUSHION SOLE beneath which is the representation of wings—boots, shoes and oxfords of leather, rubber, fabric and combinations. The Huiskamp Brothers Co., Keokuk, Iowa.

203,554 Representation of an alarm clock with the words: FLAT ALARM on the face and above the word: TIRE—tire deflation signal. The Heerwagen Brothers Co., Inc., Fayetteville, Arkansas.

203,572 HANDY-TITE—patches for rubber goods. Handy-Tite Patch Co., Detroit, Michigan.

203,579 DURO—rubber band stamps, holders for rubber type, rubber show card markers, etc. The Sachs-Lawlor Machine & Manufacturing Co., Denver, Colorado.

203,582 Words: CONSTANT COMFORT enclosed in circle in the center of which is the figure seven above which are the words: The Shoe with the, and below the words: Points of Merit—boots and shoes of leather, rubber, fabric or combinations. Ault-Williamson Shoe Co., Auburn, Maine.

203,609 WILRITE—the letter I being in the form of a fountain pen—fountain pens and pencils. Wilrite Fountain Pen Corporation, New York, N. Y.

203,615 "PULL-A-PUSH"—fountain pens and pencils. Edward Bergquist, New York, N. Y.

203,639 DU-JEN-OL—douche. London Medical Corporation, Buffalo, New York.

203,671 GREYHOUND—golf balls. May Department Stores Co., New York, N. Y.

203,698 BIG BILL—fountain pens and pencils. Charles A. Keene, New York, N. Y.

203,750 COLTOP—tank balls. American Rubber Products Corporation, Jersey City, New Jersey.

203,761 Representation of a part of a fountain pen—fountain pens. New Diamond Point Pen Co., Inc., New York, N. Y.

September 22, 1925, Act of March 19, 1920

203,770 WATKINS—slightly curved—belting, hose, machinery packing and non-metallic tires. The J. K. Watkins Co., Winona, Minnesota.

September 29, 1925, Act of February 20, 1905

203,798 Fancy pennant in the center of which are the initials: TT, on one side the word: TED, and on the opposite side the word: TRIVERS—topcoats, overcoats, raincoats, etc. Theodore Trivers, New York, N. Y.

203,828 ROMORT—the letter R being lengthened to underline the other letters, and the top of the letter T continued above the other letters—valves, couplings, etc., for use with tire-testing gages. Romort Manufacturing Co., Oakfield, Wisconsin.

203,833 WALNITE—Panels, dials and knobs for radio. American Hard Rubber Co., Hempstead and New York, N. Y.

203,861 PENROD—irregular letters inclining upwards—neckwear, bathrobes, rubbers, etc. Ben Wiener & Co., New York, N. Y.

203,862 Representation of triangle at top of which is the year: 1860, beneath which are the letters T. P. A. P. M., while at the base is the Russian word meaning St. Petersburg—India rubber, gutta percha, balata, asbestos, talc and amianthus. Société Française Tréugolnik, Levallois-Perret, France.

203,376 RUBBERNIT—letters becoming smaller towards the center—capes, baby pants and bathing caps. Rubberized Sheeting & Specialty Co., Inc., New York, N. Y.

203,903 Words: LAMBAK FLEECE COATINGS inclining upwards, with representation of a lamb above and representation of shield below, the whole surrounded by a circle, at top of which are the words: EXCLUSIVE FABRICS, and below the words: SUPER GRADE, around which is a second circle—clothing, raincoats, etc. Heidelberg, Wolff & Co., New York, N. Y.

203,926 WESTBERRY—in fancy letters—men's clothing, including suits, raincoats, etc. S. Weitz & Co., Inc., Cleveland, Ohio.

The Dominion of Canada

Registered

September 8, 1925

38,396 Representation of a shield bearing the letters: "G G," with the letters: "Sqe—G" superimposed on these letters—rubber sheeting, tires, heels, soles, etc. Gregory Tire & Rubber Co., Limited, Vancouver, British Columbia.

New Zealand

August 27, 1925

22,172 Square within which are the words: Kleinerts, beneath this, WELDED DUAL RUBBER, while in the center is the word: MIRACLE, below which is the figure of a woman and underneath the word: RE-DUC-ER—rubber belts. I. B. Kleinert Rubber Co., New York, N. Y., U. S. A.

22,471 "KLINGERIT"—packings. Rich. Klinger Gesellschaft Mit Beschrankter Haftung, Am Kanal 4, Gumpoldskirchen, near Vienna, Austria.

22,899 LINERITE—rubber goods. The B. F. Goodrich Co., New York, N. Y., U. S. A.

September 10, 1925

22,293 Representation of a fancy circle—pneumatic tire alarms, etc. Robert Bosch Aktiengesellschaft, 4, Militar Strasse, Stuttgart, Germany.

The United Kingdom

September 2, 1925

452,065 Oblong having the representation of a woman's figure in the center, on one side of which are the words: MODEL FADE-AWAY in large letters, on the other side the words: FIGURE REDUCER, in large letters, and in smaller letters the words: REDUCES THE FIGURE IN THE NATURAL WAY, beneath which are the words: MADE OF THE FINEST REDUCING RUBBER. On both sides of this oblong are smaller oblongs bearing the same words. Hip and abdomen reducers. Model Brassiere Company, Inc., 200 Fifth Avenue, New York, N. Y., U. S. A.

458,581 The letters: TEC enclosed in a diamond—rubber and gutta purcha goods. Tasker's Engineering Co., Limited, 59 Blonk street, Sheffield.

458,822 Double circle enclosing representation of two ivy leaves above which is the word: THE, and beneath the words: IVY SERIES—rubber bands, stamps, erasers, etc. James Edward Brunton, trading as Brunton & Williams, 148, Peckham Rye, London, S.E. 22.

459,578 FORD—rubber tires, mats and tube connections. Ford Motor Co. (England) Limited, First avenue, Trafford Park, Manchester.

459,739 "STETHOS" beneath which is a representation of a stethoscope—all goods included in Class 40, not including rubber bulbs for motor horns. James Harvey Bounds, 74, St. James street, Oxford street, Manchester.

459,974 LA SAUTERELLE—elastic protective casings for clocks, alarms, etc. Paul Auguste Tourtier, 10 Rue du Regard, Paris.

460,855 PLIMBO—rubber footwear. The New Liverpool Rubber Co., Limited, 292 Vauxhall Road, Liverpool.

September 9, 1925

455,662 CASTLEPHANT beneath which is the representation of an elephant—waterproof clothing, rubber boots, etc. Pocock Brothers, 233, Southwark Bridge Road, London, S. E. 1.

457,109 KALIOKO—rubber for insulating purposes. Callender's Cable & Construction Co., Limited, Hamilton House, Victoria Embankment, London, E. C. 4.

457,123 HYCOE—brake linings and clutch facings. The Manhattan Rubber Manufacturing Co., 61 Willett street, Passaic, New Jersey, U. S. A.

458,430 Oblong which encloses the representation of a leopard lying on a fountain pen, at top the words: FOUNTAIN PEN, and in smaller letters the words: Self-Filling Model and 14 ct Gold Nib Iridium Pointed, beneath the figure are the words: MADE IN ENGLAND—reservoir pens. The Mentmore Manufacturing Co., Limited, Tudor Grove, Well street, Hackney, London, E. 9.

460,541 VULTEX—waterproof fabrics in the piece. Vultex Products, Limited, General Buildings, Aldwych, London, W. C. 2.

460,542 VULTEX—waterproof fabrics in the piece (silk). Vultex Products, Limited, General Buildings, Aldwych, London, W. C. 2.

460,543 VULTEX—waterproof fabrics in the piece (wool, worsted or hair). Vultex Products, Limited, General Buildings, Aldwych, London, W. C. 2.

460,544 VULTEX—waterproof garments. Vultex Products, Limited, General Buildings, Aldwych, London, W. C. 2.

September 16, 1925

133,770 VULPRO—waterproofed cotton piece goods. Vultex Products, Limited, General Buildings, Aldwych, London, W. C. 2.

458,715 SPARTANITE—goods manufactured from rubber. Fuller's United Electric Works, Limited, Woodland Works, Grove Road, Chadwell Heath, Essex.

458,824 SPARTANITE—battery jars, covers, vents, etc. Fuller's United Electric Works, Limited, Woodland Works, Grove Road, Chadwell Heath, Essex.

460,169 LOUVRAIN—raincoats. Reginald John Blyton, trading as Louvre, 61, High street, Croydon, Surrey.

460,551 BYROMESE—all goods included in Class 38. Joseph Byrom & Sons, Limited, Droylsden, near Manchester.

460,552 DYNAMOR—driving belts, conveyor bands, etc. Frankfurter Asbestwerke Aktiengesellschaft Vormals Louis Wertheim, 2 Hahnstrasse, Frankfurt-am-Main-Niederrad, Germany.

460,749 BOBETTE—combs. The North British Rubber Co., Limited, Castle Mills, Fountainbridge, Edinburg, Scotland.

460,789 SECALL—fabric included in Class 40 made principally from rubber. National Saddle Works, Limited, 30, Charlotte street, Birmingham.

460,829 Square enclosing the words: A SHIELD AGAINST ALL CLIMATES while the word: EDLEMAC runs downward from the center—waterproof garments. Joseph Edelstone, 3, Tebbutt street, Rochdale Road, Manchester.

September 23, 1925

456,086 "SUPERTWIST" Tires. The Goodyear Tire & Rubber Co., 1144 East Market street, Akron, Ohio, U. S. A.

458,167 CAMEO. Elastic webs, cords and braids. Jones, Stroud & Co., Limited, Austin's Factory, Market Place, Long Eaton, Nottinghamshire.

458,744 Representation of a circle enclosing two arrows pointing through two rings—syringes. Injecta Aktien Gesellschaft, Copenickerstrasse 109a, Berlin, S. O. 16, Germany.

460,385 The word: FELIX beneath which is the representation of a cat—goods manufactured from rubber. Pat Sullivan, 1947 Broadway, New York, N. Y., U. S. A.

460,981 AVEX. Rubber heels, tips, soles, etc. I. T. S. Rubber Co., Limited, 42, Great Russell street, London, W. C. 1.

461,124 Representation of a leg above which are the words: The "ADELAIDE," running vertically the word: FREE and at the bottom the word: GARTER—garters. Adelaide Louisa Thomas, Monmouth House, 24, Lawrence street, Chelsea, London, S. W. 3.

September 30, 1925

450,673 Representation of a cushion from which is springing the figure of a child and above is the word: NEWMATIK—cushions stuffed with sponge rubber. Ernest Thomas Fielding, trading as Fielding & Co., 32, Shaftesbury avenue, London, W. 1.

461,322 CHANTECLER—clothing. Société du Caoutchouc Manufacturé, 86 Rue Notre Dame de Nazareth, Paris, France.

461,324 AYA—goods manufactured from rubber. Société du Caoutchouc Manufacturé 86 Rue Notre Dame de Nazareth, Paris, France.

461,325 AYA—tents and awnings. Société de Caoutchouc Manufacturé, 86 Rue Notre Dame de Nazareth, Paris, France.

Designs

The United States

68,214 Shoe soles. Term 7 years. Francis A. McDonald, assignor to Lambertville Rubber Co., both of Lambertville, New Jersey.

68,348 Tire. Term 3½ years. John F. Schaefer, Findlay, assignor to The Cooper Corporation, Cincinnati, both in Ohio.

68,371 Radicdial. Term 7 years. Oswald B. Carson, Brooklyn, assignor to American Hard Rubber Co., Hempstead, both in New York.

68,393 Rubber shoe soles. Term 3½ years. Albert Linn Murray, assignor to Auburn Rubber Co., both in Auburn, Indiana.

68,403 Truck tire. Term 7 years. Mark Schneiderman, New York, N. Y.

The Dominion of Canada

6,816 Canoe cushion and life preserver. Calvin McQuesten, Hamilton, Ontario.

Germany

914,595 (May 25, 1925). Bathing wrist-watch strap of rubber. Phil. Penin, Gummiwarenfabrik, A.-G., Leipzig-Plagwitz.

914,620 (June 2, 1925). Work blouse of rubberized fabric. Gustav Berlinger & Co., Stuttgart.

914,648 (May 2, 1925) Work coat of rubberized material. Gustav Berlinger & Co., Stuttgart.

914,649 (May 6, 1925). Bag for packing, of paper, rubber, fabric or the like. Dr. Ivo Deiglmayr A.-G., Chem. Fabrik, Munich.

914,912 (April 30, 1925). Rubber cushioning for stretcher. Friedrich Preussner and Friedrich Kreide, Linden-Allee 25, Charlottenburg.

914,994 (May 11, 1925) Flower-pot, vase, and similar articles with mat of rubber or the like. Georg Fischer, Wildensorgerstrasse 42 b., Bamberg.

915,022 (May 25, 1925). Rubber covering for floors, walls, etc., in strips or sheets. Franz Krüger, Beethovenstrasse 31, Saarbrücken.

915,025 (May 26, 1925). Bathing shoe of dipped rubber. Flügel & Polter, Gummiwarenfabrik, Leipzig-Plagwitz.

915,171 (June 2, 1925). Rubber boat. Harburger Gummiwaren-Fabrik Phœnix A.-G., Harburg a. E.

915,188 (June 23, 1924). Rubber elastic sleeve holder. Cosman, Villbrandt & Zehnder, A.-G., Elberfeld.

915,233 (May 28, 1925) Hat protector of rubber. Belinde-Werke, A.-G., Wandshek.

915,258 (June 2, 1925) Solid rubber heel with holder. Otto Lehmann, Armbruststrasse 19, Hamburg.

915,751 (June 5, 1925) Anti-slip insert for bath tubs. J. Samuel, Gummiwaren-Fabrik, Güstrow.

915,806 (April 25, 1925) Air-filled rubber bladder fitted for electrical illumination. Wilhelm Sauerbrey, Schlesischestrasse 29-30, Berlin.

915,829 (May 23, 1925) Sponge rubber band to prevent wound chafing. Anna Paak, nee Heinemann, Cleudnerstrasse 3, Leipzig-Mockau.

916,031 (June 9, 1925) Rubber heel protector. Louis Henry Bastian, Fuhlsbüttelerstrasse 715, Hamburg-Ohlsdorf.

916,086 (May 25, 1925) Rubber elastic strap for suspenders, sleeve-holders and the like. Hugo Henze, Kronprinzen-allee 99, Elberfeld.

916,104 (June 8, 1925). Dress shield of rubber sponge with smooth surface. H. Papavassilion, Theresienstrasse 84, Munich.

916,200 (June 27, 1925). Absorption chamber for absorption of plastic or strong suspensions. Continental-Caoutchouc und Gutta Percha Compagnie, Hannover.

916,301 (June 4, 1925). Elastic rubber bandage for varicose veins. Elberfelder Gummiband-Industrie Bonse & Spies, Elberfeld.

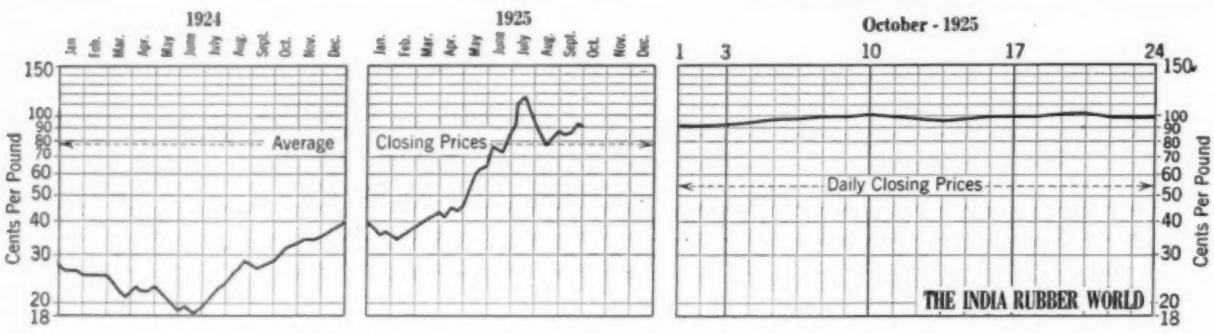
916,317 (June 11, 1925). Rubber body with suction and pressure action with which to attach paper pasters to smooth surfaces. Paul Imhof, Linienstrasse 94-95, Berlin.

916,365 (June 12, 1925). Rubber button. Wilhelm May, Thomasiusstrasse 14, Frankfurt a. M.

916,383 (November 27, 1924). Seamless tire for bicycles, motorcycles, etc. Richard Hagemann, Hamburgerstrasse 41, Braunschweig.

916,395 (May 11, 1925). Rubber tire for motor vehicles and the like. Ernst Kindler, Kantplatz 1, Hannover-Kleefeld.

916,511 (May 29, 1925). Rubber foot cover. Franz Döbbelin, Dresdenerstrasse 106, Berlin.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE market for spot ribbed smoked sheet rubber during October covered an upward range from 92 cents to $1.02, averaging 98 cents for the first 3 weeks' period. The closing prices for ribs were October 1, 92 buyers, 92½ cents sellers; October 10, 99 buyers, $1.00 sellers; October 17, the same; October 21, $1.02 buyers, $1.02½ sellers, easing off to 99 cents buyers, $1.01 sellers on October 24. During the week ended on the latter day factory buying reached good proportions, October 27 the market was easy at 99 buyers and 99½ cents sellers.

The market was sensitive though quiet. The world's visible rubber supply, of which two-thirds are now afloat, is considered as sufficient for three months, leaving out a small margin at either end. November 1 announcement is due from the English Colonial office of the increased exportable allowance under the Stevenson plan for the next 3 months. The expected increase of 10 per cent will raise the output of British controlled plantations to 85 per cent of standard production. It is reported that the S. S. Stockwell, sunk in shallow water on the Algerian Coast about the middle of the month, will be salvaged and the consignment of about 800 tons of rubber aboard will later arrive in New York.

Factory buying interest increased in all positions as the month progressed especially during the second and third weeks when prices exceeded the dollar level. Buying ranged from spot to all future positions of next year. Profit taking and lower London cables in the otherwise steady, strong and active market of the third week.

Arrivals for October are estimated to total about 36,000 tons as compared with 27,000 reported for September which fell somewhat short of consumption. With London stocks declining the supplies of spot and near-by for the remainder of the year, at least will be rather limited.

Parás have held steady and firm throughout the month with tendency of prices to stiffen in sympathy with plantation rubber. Supplies and offers of Parás are limited. Balatas and other grades are offered in fair supply but have been rather neglected.

Importations of all grades in September were 27,071 tons, compared with 29,000 tons one year ago. Plantation arrivals for September were 24,777 tons, compared with 28,362 tons one year ago. Total importations of plantation rubber for nine months ended September 30 were 256,244 tons, compared with 211,960 tons for the corresponding period of 1924. Total importations of all grades of rubber for the nine months ended September 30, 1925, were 274,360 tons compared with 223,861 tons for the corresponding period of last year.

London

The market for the month was particularly sensitive to every influence and rumor relating to present and future supplies. Early in the month the delay in arrival of 2 cargos at New York caused prices to gain strength and rise 3*d*. This was followed by profit taking and aggressive buying sending spot prices on October 9 to 48½*d* buyers, 49*d* sellers, where it held for 3 days. Unconfirmed cables from Colombo, October 12, to the effect that the Colonial Office would increase the exportable allowance of plantation grades to 95 per cent instead of to 85 per cent for the coming quarter had the effect of causing a decline of 1*d* in the London market but was without effect in New York because of the holiday closing of the latter market on Columbus Day.

The advance of American tire prices October 17 and later heavy withdrawals from London stocks served to make a strong and active market advancing the spot price October 21 to 49¾*d* buyers, 50½*d* sellers, followed by strongly speculative conditions. The weekly reports of London stocks show a decline where an increase was hoped for, the stock on October 19 being 270 tons

New York Spot Closing Rubber Prices

PRICES IN CENTS, PER POUND

PLANTATIONS	September, 1925														October, 1925										
	15	16	17	18	19	21	22	23	24	25	26	28	29	30	1	2	3	5	6	7	8	9	10	*12
Sheet																								
Ribbed smoked	93½	93¼	92¾	92¾	94¼	92	93¾	93½	90	89	89	89¼	91¼	91½	91¼	91½	92	94½	97	97½	99	99¼	101	...
Crêpe																								
First latex	94¼	95	93¾	94¼	94¼	92¾	93¾	94½	90¾	89	89¼	89¾	91½	92¼	91¾	91½	92¾	94½	97	97½	99	99¼	101	...
Off latex	91¼	93	92¾	93½	93¾	91½	92¾	92¾	89¾	88	88¼	87¾	90¾	91	90½	90¼	91½	93¼	95½	96½	97	96¾	99¼	...
No. 2 blanket	79¼	80	80¾	81½	82	81½	81½	81	79	78	77½	78½	81¼	81	81¾	82¼	84¼	87¼	89	89	91	91	91¾	...
No. 3 blanket	77¾	78¼	79	79½	80¾	80¾	82¼	82½	79	78½	77¼	79	78½	78½	79½	81	82	86¼	87½	88	89	90¼	90¾	...
No. 4 blanket	76	77	77¾	77¾	78½	79	80¾	80½	78½	77	76¾	77½	77½	77	77	79	80¾	84¾	86	86	87	88	88¾	...
Thin, clean brown	79	80½	82½	81¾	81¾	81	79¼	79¼	77½	76	75	75¼	79½	79	81	82	83	86½	88	88	89	89	89¼	...
Rolled brown	57½	56½	53¾	54½	54½	53¼	53½	54	53¼	51½	52¼	53	53¾	57	56½	57	59	62¼	67½	66½	68½	71	71¼	...

*Holiday.

less than that on September 28. The weekly stocks were as follows: September 28, 5,402 tons; October 5, 5,009 tons; October 12, 4,723 tons; October 19, 5,100 tons; October 26, 5,132 tons.

Singapore

The market for October closely paralleled the upward course of the London and New York beginning October 1 at 37⅜*d* with a strong upward tendency and sparing offers. This tendency promptly assumed force under the influence of western cables showing a lively demand for spot while offerings were made very sparingly. The advance reached 49½*d* October 10 with spot still in urgent demand. The succeeding week showed increasing firmness followed by weaker and declining prices. The spot price had declined on October 27 to 44¾*d* when sales of native rubber were a feature.

Comparative Low and High New York Spot Rubber Prices

	October—					
PLANTATIONS	1925*		1924		1923	
First latex crêpe	$0.92	@$1.03½	$0.29	@$0.33½	$0.26	@$0.28½
Smoked sheet, ribbed	.92	@ 1.02½	.28½	@ .33	.26	@ .28½
PARAS						
Upriver, fine	.71½	@ .95	.28¼	@ .32½	.22	@ .26¼
Upriver, coarse	.46	@ .63	.18¼	@ .23	.18	@ .22¼
Islands, fine	.63	@ .78	.24¼	@ .29½	.19½	@ .25
Islands, coarse			.15	@ .21	.11½	@ .14
Cametá	.37	@ .48	.14½	@ .19	.11¼	@ .13

*Figured to October 26, 1925.

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, Cannon Street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of September last totaled 29,425 tons. The amount of rubber imported was 12,913 tons, of which 10,637 tons were declared as wet rubber. The following are comparative statistics:

	1924		1925	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	23,844	8,867	19,183	10,132
February	19,395	7,440	21,622	10,071
March	22,294	8,269	26,836	13,399
April	20,551	7,909	22,414	11,750
May	19,674	7,259	26,667	12,979
June	18,084	7,435	27,894	14,706
July	21,670	9,777	24,809	16,192
August	22,133	9,776	27,753	12,025
September	25,129	9,291	29,425	12,913
Totals	192,772	76,023	226,603	114,167

Distribution

The following is a comparative return of distribution of shipments during the months of August and September, 1925:

Destination	August, 1925 Tons	September, 1925 Tons
United Kingdom	5,963	5,625
U. S. A.	17,885	18,834
Continent of Europe	2,824	3,311
British Possessions	323	347
Japan	755	1,289
Other Foreign Countries	3	19
Totals	27,753	29,425

New York Spot Closing Rubber Prices

PRICES IN CENTS, PER POUND

PLANTATIONS	October, 1925											
	13	14	15	16	17	19	20	21	22	23	24	26
Sheet												
Ribbed smoked	97¾	95½	97	99¼	99	99	101¼	102	99¼	99½	99¼	98
Crêpe												
First latex	97¾	95½	97	99½	100	100	102	102¾	100¼	99¾	99½	98¼
Off latex	95½	94¼	96	98		98¾	98½	98½	101	98	98½	97¾ 97
No. 2 blanket	91	86½	88	89¾	89	89	91	93	91	90½	90½	90¼
No. 3 blanket	89	86	87	88½	88	88	90	90½	90	88¾	88¾	88¾
No. 4 blanket	87	84½	86	86¼	86	86	88	89	88	86¼	86½	86¾
Thin, clean brown	89	86½	86	88¾	88¾	88¾	91	93	91	88½	88¾	88½
Rolled brown	69	67½	70	75¼	75½	75½	76½	77¼	75½	76	76	75½

New York Quotations

Following are the New York spot and future rubber quotations, for one year ago, one month ago, and October 26, the current date:

	October 25, 1924		September 25, 1925		October 26, 1925	
Plantation Hevea						
Rubber latex (Hevea)...*gal.*	$1.30	@	$3.00	@	$3.25	@
CREPE						
First latex, spot	.32½	@	.88	@.89	.99	@.99½
Aug.-Sept.		@	.87	@.88		@
Oct.	.32½	@		@	.98¼	@.99
Oct.-Dec.	.32½	@	.78	@.79	.95	@.95½
Jan.-March	.32¾	@	.69	@.70	.86½	@.87
Jan.-June		@	.65	@.66	.82	@.83
Apr.-June		@		@	.80	@.81
Off latex, spot	.32½	@	.87	@.88	.97	@.97½
Amber No. 2, spot	.32	@.32¼	.75	@.76	.93	@.94
Aug.-Sept		@	.74	@.75		@
Oct.	.32	@		@	.88	@
Oct.-Dec.	.32	@	.61	@.62	.90	@.90½
Jan.-March	.32	@	.60	@.61	.79	@.80
Jan.-June		@	.58	@.59	.74	@.75
Apr.-June		@		@	.72	@.73
Amber No. 3 spot	.31¾	@.32	.74	@.75	.92	@.93
Brown, thin, clean	.31¾	@.32	.73	@.74	.90	@.91
Brown, specky	.31¼	@.31½	.70	@.71	.88	@.89
Brown, roll	.31	@	.54	@.55	.76	@.77
Sole crêpe	.42	@.45	1.00	@	1.05	@
SHEET						
Ribbed, smoked, spot	.32½	@	.88	@.89	.98	@.98½
Aug.-Sept.		@	.87	@.88		@
Oct.	.32½	@		@	.97	@.97½
Oct.-Dec.	.32½	@	.78	@.79	.94	@.94½
Jan.-March	.32¾	@	.69	@.70	.86	@.87
Jan.-June		@	.65	@.66	.82	@.83
Apr.-June		@		@	.80	@.81
East Indian						
PONTIANAK						
Banjermassin	.07	@.07½	.14	@	†.16	@.16
Palembang	.07¾	@		@		@
Pressed block	.13¾	@	.22	@	†.22	@.24
Sarawak	.07	@	.14	@		@
South American						
PARAS						
Upriver, fine	.32½	@	.73	@	.94	@
Upriver, fine	*.41¾	@	*.94	@	*1.12	@
Upriver, medium	.29	@	.68	@		@
Upriver, coarse	.21¾	@	.47	@	.62	@
Upriver, coarse	*.32¼	@	*.72	@	*.83	@
Islands, fine	.30	@	.63	@	.78	@
Islands, fine		@	*91½	@	*1.07	@
Islands, medium		@	.62	@		@
Islands, coarse	†.16	@		@	†.43	@
Cametá	†.16	@	.37	@.38	.44	@
Acre Bolivian, fine	.32½	@	.73½	@	.94½	@
Acre, Bolivian, fine	*.42	@	.95	@	*1.13	@
Beni Bolivian	.32½	@	.73½	@	.95	@
Madeira, fine	.33	@	.73½	@	†.97	@
Peruvian, fine	.30	@	.70	@	.92	@
Tapajos, fine	.30½	@	.68	@	.87	@
CAUCHO						
Upper caucho ball	.23¼	@	.48	@	.63	@
Upper caucho ball	*.33	@	*.72	@	*.85	@
Lower caucho ball	.21	@	.45	@	.59	@
Manicobas						
Ceará negro heads	.14	@		@	.65	@
Ceará scrap	.08	@		@	.45	@
Manicobas 30% guaranty	.20	@		@	.50	@
Mangabeira, thin sheet	.25	@		@	.50	@
Centrals						
Central scrap	.20½	@		@	.56	@
Central wet sheet	.17	@		@	.43	@
Corinto scrap	.20½	@		@	.56	@
Esmeralda sausage	.20½	@		@	.56	@
Guayule washed and dried	.26	@	.45	@	.52	@
Africans						
Black Kasai		@	.74	@	.82	@
Black Upper Congo		@	.74	@	.82	@
Red Upper Congo		@	.65	@	.76	@
Kasai Loanda		@		@	.72	@
Upper Congo Arumini		@		@	.76	@
Masai (Konakry)		@		@	.76	@
Gutta Percha						
Gutta Siak	.17	@.17½	.22	@	.24	@
Gutta Soh	.27	@.27¾	.30	@		@
Red Macassar	3.00	@3.20	3.00	@	3.60	@
Balata						
Block, Ciudad Bolivar	.64	@	.64	@	.61	@
Colombia	.53	@.54		@	.53	@
Panama	.53	@.54		@	.53	@
Surinam, sheet	.75	@	.75	@	.75	@
amber	.78	@		@	.82	@
Chicle						
Honduras	‡.58	@.68	‡.58	@.68	‡.58	@.68
Yucatan, fine	‡.58	@.68	‡.58	@.68	‡.58	@.68

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡Duty paid.

Reclaimed Rubber

The past month has been one of increasing activity in the reclaimed rubber market. In fact, the demand for stocks is pronounced as unbounded. This condition is attributed to a growing appreciation on the part of rubber manufacturers of the inherent technical value of reclaims. In the reclaimers' view three factors are contributing to this growth: (1) The users of reclaims in the past are now enlarging their uses for it. (2) Others are only now realizing the importance of reclaim in their compounding and have adopted it for its technical and economic value. (3) Many new manufacturers have entered the rubber manufacturing industry and have been aided by competition to see the need of reclaims in their work.

The pressure for deliveries is now so great that most reclaimers request as much advanced notice as possible for shipment. At the same time programs for expansion of production are being pushed rapidly in the hope of meeting consumers' needs more promptly in the near future.

In spite of the outlook for an indefinite continuance of high prices for crude rubber, reclaimers are endeavoring to hold the prices of their products down to moderate levels.

New York Quotations

October 26, 1925

Auto Tire		
Black	lb.	$0.10¼ @ $0.10¾
Black, washed	lb.	.11¼ @ .11¾
Black, selected tires	lb.	.12½ @ .13
Dark gray	lb.	.14½ @ .15
Light gray	lb.	.15½ @ .16
White	lb.	.18½ @ .19
High Tensile Black		
Super-reclaim, No. 1	lb.	.30 @ .30½
No. 2	lb.	.16½ @ .17
Shoe		
Unwashed	lb.	.10¼ @ .10¾
Washed	lb.	.13¼ @ .13¾
Tube		
No. 1	lb.	.26 @ .26½
No. 2	lb.	.18½ @ .19
Uncured Tire Friction		
No. 1	lb.	.64 @ .68
No. 2	lb.	.46 @ .50
Miscellaneous		
High grade, red	lb.	.17½ @ .18
Truck tire, heavy gravity	lb.	.10½ @ .11
Truck tire, light gravity	lb.	.11½ @ .12
Mechanical blends	lb.	.08 @ .09

PRIME MOVERS USED IN RUBBER INDUSTRY

In a bulletin entitled *The Rubber Industries*, issued by the Department of Commerce, are the following interesting statistics regarding the prime movers used in rubber factories:

PRIME MOVERS, BY TYPE, NUMBER AND HORSEPOWER, FOR THE UNITED STATES:

	1923		1919		1914	
Type	Number	Horse-power	Number	Horse-power	Number	Horse-power
Prime movers, total	16,472	605,634	10,001	[1]429,273	2,237	[1]199,242
Steam engines and steam turbines	502	257,035	555	226,539	556	158,547
Internal-combustion engines	31	8,859	32	3,773	30	1,691
Water turbines	50	6,506	54	5,614	41	5,021
Electric motors driven by purchased current	15,889	333,234	9,360	193,347	1,610	33,983
Electric motors, total	26,645	514,033	16,654	355,410	6,176	114,803
Driven by purchased current	15,889	333,234	9,360	193,347	1,610	33,983
Driven by current generated in establishment reporting	10,756	180,799	7,294	162,063	4,566	80,820

[1] These figures differ slightly from those published in previous reports because of the exclusion here and the inclusion in the previous reports of data for rented power other than electric.

The Market for Rubber Scrap

New York

During October the market for rubber scrap has been more or less disappointing because orders from consumers have been of moderate volume only. Reclaimers are not in urgent need, apparently, of replenishing their stocks of scrap although operating their mills at full capacity. In consequence scrap prices have declined considerably in most grades and movement has been slow.

Export trade in rubber scrap also shows reduced volume because terms are not favorable enough as respects credit conditions to meet the views or convenience of foreign customers.

BOOTS AND SHOES. These grades are moving rather slowly at prices well under those of a month ago.

INNER TUBES. These are in better demand than any other grade and have experienced less decline in price from the prices quoted a month ago.

MIXED TIRES. More active than boots and shoes but not attracting great interest under present conditions. Quotations run from $1.00 to $5.00 a ton less than last month.

AIR-BRAKE HOSE AND MECHANICALS. There is very little call for these grades at present. Prices are very little changed.

Quotations for Carload Lots

October 26, 1925

Boots and Shoes		
Boots and shoes, black	lb.	$0.02¾ @ $0.02⅞
Red and white	lb.	.02 @ .02⅛
Trimmed arctics, black	lb.	.02 @ .02⅛
Untrimmed arctics	lb	.01⅞ @ .02
Tennis shoes and soles	lb.	.01¼ @ .01⅜
Hard Rubber		
No. 1 hard rubber	lb.	.10 @ .12
Battery jars, black compound	lb.	.02¼ @ .02½
Inner Tubes		
No. 1, floating	lb.	.10½ @ .10¾
No. 2, compounded	lb.	.08½ @ .08¾
Red	lb.	.06½ @ .06¾
Mixed tubes	lb.	.07⅛ @ .07⅜
Mechanicals		
Mixed black scrap	lb.	.01¼ @ .01½
Heels	lb.	.01 @ .01½
Hose, air-brake	ton	26.00 @ 28.00
regular	ton	20.00 @ 21.00
No. 1 red	lb.	.03¼ @ .03½
No. 2 red	lb.	.01⅝ @ .02¼
Red packing	lb.	.01½ @
White, druggists' sundries	lb.	.04 @ .05
Mechanical	lb.	.02¼ @ .04
Tires		
Pneumatic Standard—		
Mixed auto tires with beads	ton	27.00 @ 28.00
Beadless	ton	36.00 @ 38.00
White auto tirer with beads	ton	40.00 @ 43.00
Beadless	ton	64.00 @ 66.00
Mixed auto peelings	ton	37.00 @ 39.00
Solid—		
Mixed motor truck, clean	ton	46.00 @ 48.00

AUSTRIAN RUBBER WORKERS' WAGES

In Austria skilled rubber workers are paid 0.86 schillings (schilling = $0.1415) per hour; qualified helpers receive 0.75 schillings, and unqualified helpers 0.66 schillings. Female helpers get only 0.40 schillings per hour.

DURING THE TWELVE MONTHS ENDED JUNE, 1925, AMERICAN rubber manufacturers exported 838,518 pairs of rubber boots, value $1,971,711; 1,590,634 pairs of rubber shoes, value $1,307,769; and 4,392,776 pairs of canvas rubber-soled shoes, value $3,145,062. Similar exports for this period of rubber soles and heels reached a total of 2,842,867 pounds, value $922,881. Exports of canvas rubber-soled shoes, also rubber soles and heels have increased in both quantity and value during the first six months of the present year. July and August figures for these four classes of goods were in general higher than those for June.

The Market for Chemicals and Compounding Ingredients

New York

THE situation in the market for compounding ingredients is one of steady demand with prices firm or with upward tendency in some instances. The high prices ruling for crude rubber are a stimulating influence in the demand for substitutes and reinforcing pigments that maintain quality in rubber goods compounding.

ACCELERATORS. The use of accelerators has progressed to the point where they have became classified by compounders by their special adaptations to typical results. There is a tendency to use two accelerators in the same mixing to gain the combined advantages resulting.

ANILINE. A better demand is noted this month over last. Prices continued firm and unchanged.

ANTI-OXIDANTS. The use of these is being taken up by the larger companies, and their use, like accelerators, will probably extend to all branches of the rubber industry within a moderate period of time.

BENZOL. Production is well sold up. A reduction in price of one cent a gallon early in the month did not increase the demand. Production has increased.

CARBON BLACK. Following the decrease of gas consumption for carbon black manufacture by the Conservation Commission in Louisiana, prices gained firmness and an upward tendency. The standard rubber grade is in active demand.

CLAY. Clay is increasingly popular as a compounding ingredient. There are numerous producers and many qualities are offered. In the present active movement difficulty is experienced in obtaining spot deliveries except from the heaviest producers who maintain stocks at important centers of distribution for convenience of the trade.

LITHARGE. This material is in routine movement to supply rubber manufacturing needs. Prices are steady and firm and have not advanced with pig lead.

LITHOPONE. Stocks are well sold up. Prices are steady and unaffected by the advance in zinc. Placing of forward contracts, covering the next 6 months, is now in progress.

SOLVENT NAPHTHA. Supplies are barely adequate to meet the volume required. Prices are firm.

SUBLIMED LEAD. The consuming demand is better than routine and prices are firm and steady.

ZINC OXIDE. Prices are firm and steadily gaining in strength because of the advance in metallic zinc. Rubber makers' requirements are of good volume and are liable to continue so for the remainder of the year, at least.

New York Quotations

October 26, 1925

Accelerators, Inorganic

Lead, carbonate	lb.	$0.10¼	@
Lead, red	lb.	.12¼	@
sublimed blue	lb.	.10	@
sublimed white	lb.	.10	@
Lime R. M. hydrated (fact'y)	ton	15.00	@
Litharge	lb.	.11¼	@
Magnesia, carbonate (fact'y)	lb.	.07	@
calcined, light (bbls.)	lb.	.24	@ .25
calcined, md. light (bbls.)	lb.	.15	@
calcined, heavy (bbls.)	lb.	.04½	@
magnesium, carb., light (bags)	lb.	.06¾	@ .07
Orange mineral A.A.A.	lb.	.14½	@
Rubber lead No. 4	lb.	.30	@

Accelerators, Organic

A-7	lb.	.75	@ .85
A-19	lb.	.85	@ .95
Aldehyde ammonia	lb.	.93	@
Aniline (factory)	lb.	.17	@ .17½
B. B	lb.	1.07	@
Benzidine (base)	lb.	.75	@ .78
D. P. G. salt	lb.	.89	@
Diethyl amine	lb.	2.10	@
Dimethyl amine	lb.	2.75	@
Dimethylaniline	lb.	.58	@ .60
Di-ortho-tolylguanidine	lb.	1.13	@
Di-ortho-tolylthiourea	lb.		@
Diphenyl guanidine	lb.	.98	@
Ethyl aniline	lb.	1.10	@
Ethylidene aniline	lb.	.65	@
Ethyl-o-toluidine	lb.	1.10	@
Excellerex	lb.	.30	@ .35
Formaldehyde aniline	lb.	.42	@
Hexamethylene tetramine	lb.	.82½	@
Lead oleate (fact'y)	lb.	.18	@
Methylene aniline	lb.	.37	@ .40
Methylenedianilide	lb.		@
No. 999	lb.	.17½	@
No. 552 Piperidine piperidyl-dithio-carbamate	lb.		@
Para-nitrosodimethylaniline	lb.		@
Paraphenylene diamine	lb.		@
Quinodine	lb.	.40	@
Shawinigan paraldehyde	lb.		@
Super-sulphur, No. 1	lb.	.50	@ .55
No. 2	lb.	.20	@ .30
Tensilac No. 41	lb.	.65	@
Thiocarbanilide	lb.	.25	@ .30
Triphenylguanidine	lb.	.73	@
Tuads	lb.	5.00	@
Vulcone	lb.		@
Zimate	lb.	5.00	@

Acids

Acetic 28% (bbls.)	100 lb.	$3.38	@
glacial (carboys)	lb.	.16	@
Cresylic (97% straw color)	gal.	.55	@ .60
(95% dark)	gal.	.55	@ .60
Sulphuric, 66° (carboys)	lb.	.02	@

Alkalies

Caustic soda	100 lbs.	3.10	@ 4.75
flake, 76% (factory)	100 lbs.	4.16	@ 4.31
solid, 76% (factory)	100 lbs.	3.76	@ 3.91

Anti Oxidants

V. G. B.	lb.	.70	@

Colors

BLACK

Bone	lb.	.05½	@ .11
Carbon:			
A. & W. nonfil	lb.	.40	@
Aerfloted arrow	lb.	.08½	@ .12½
Compressed	lb.	.08	@ .11
Uncompressed	lb.	.08	@ .12
Micronex	lb.	.09	@ .13
Drop	lb.	.06	@ .10
Lampblack	lb.	.12	@ .50
Shawinigan	lb.		@
Thermatomic carbon	lb.	.04	@

BLUE

A. & W. blue	lb.	2.00	@ 4.00
Prussian	lb.	.34	@ .35
Ultramarine	lb.	.08	@ .35

BROWN

Sienna, Italian	lb.	.05½	@ .07½
Umber, Turkey	lb.	.04	@ .06

GREEN

A. & W. green	lb.	2.80	@ 3.00
Chrome, light	lb.	.28	@ .30
medium	lb.	.30	@ .32
dark	lb.	.31	@ .34
commercial	lb.	.09	@ .10
Oxide of chromium	lb.	.33	@ .38
T. K.	lb.	.35	@ .40

RED

Antimony, golden	lb.	$0.16	@
golden T. K.	lb.	.18	@ .21
pentasulphide	lb.	.33	@ .35
golden R.M.P. No. 7	lb.	.20	@
golden 15/17 % G. E.	lb.	.26	@ .30
Antimony, sulph. crimson	lb.	.27	@
crimson T. K., 15/17%	lb.	.40	@ .43
crimson T. K., S/F	lb.	.48	@ .50
crimson, 15/17% G. E.	lb.	.42	@ .45
crimson, R.M.P. No. 3	lb.	.50	@
7-A	lb.	.37	@
Z-2	lb.	.20	@
Antimony			
A. & W. red (4 shades)	lb.	1.50	@ 3.00
purple	lb.	2.00	@ 3.00
Sulphuret vermilion	lb.	.50	@
Iron oxides			
bright red pure domestic	lb.	.11	@ .12
bright red pure English	lb.	.11	@ .14
bright red reduced English	lb.	.07½	@ .11
bright red reduced domestic	lb.	.07	@ .11
Indian (maroon), red pure domestic	lb.	.10	@ .11
Indian (maroon), red pure English	lb.	.09½	@ .12
Indian (maroon), red reduced English	lb.	.07½	@ .09
Indian (maroon), red reduced domestic	lb.	.08	@ .10
Oximony	lb.	.13½	@
Spanish red oxide	lb.	.02½	@ .04½
Venetian reds	lb.	.02½	@ .05
Yellow oxide pure	lb.	.08	@ .10
Pará toner	lb.	1.00	@ 1.15
Toluidine toner	lb.	2.00	@ 2.25
Vermilion, English quicksilver	lb.	1.40	@ 1.60

WHITE

Albalith	lb.	.05⅞	@ .06¼
Aluminum bronze	lb.	.55	@ 1.20
Lithopone	lb.	.07	@ .07½
Azolith	lb.	.05⅝	@ .06¼
Sterling	lb.	.05⅝	@ .06¼
Zinc oxide			
AAA (lead free)	lb.	.07¼	@ .07¾
Azo (factory):			
ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (5% leaded)	lb.	.06⅞	@ .07⅛
Z (8% leaded)	lb.	.08	@ .08½

Colors

WHITE—*Continued*		
French process, Florence brand		
Green seal ..... *lb.*	$0.11½ @	$0.11⅝
Red seal ..... *lb.*	.10⅛ @	.10⅜
White seal ..... *lb.*	.12⅛ @	.12⅜
Horse Head brands		
Selected ..... *lb.*	.08 @	.08¼
Special ..... *lb.*	.08 @	.08¼
XX red ..... *lb.*	.07½ @	.07¾
Leaded brands		
Lehigh ..... *lb.*	.08 @	.08¼
Standard ..... *lb.*	.07⅞ @	.07⅞
Sterling ..... *lb.*	.08 @	.08½
Superior ..... *lb.*	.08 @	.08½
Palmerton process		
Kadox, black ..... *lb.*	.10⅞ @	.11⅛
blue ..... *lb.*	.09⅞ @	.10⅛
red ..... *lb.*	.08⅞ @	.09⅛
YELLOW		
A. & W. yellow ..... *lb.*	2.50 @	4.00
Arsenic ..... *lb.*	.70 @	.75
Chrome ..... *lb.*	.17½ @	.18½
Ochre, domestic ..... *lb.*	.02 @	.03
imported ..... *lb.*	.03 @	.04

Compounding Ingredients

Aluminum flake (sacks c.l.) *ton*	21.85	@
(sacks l.c.l.) *ton*	24.50	@
Aluminum silicate ..... *ton*	22.00	@25.00
Ammonia carbonate ..... *lb.*	.17½ @	.19
Are-o-sole ..... *ton*	10.00	@14.00
Asbestine ..... *ton*	13.50	@14.50
Barium, carbonate (bbl.) .. *ton*	54.00	@56.00
dust ..... *lb.*	.05 @	.06
Barytes, imported ..... *ton*	27.00	@28.00
water ground and floated .. *ton*	23.00	@26.00
Basofor ..... *lb.*	.04½ @	
Blanc fixe, dry ..... *ton*	75.00	@85.00
pulp ..... *ton*	55.00	@60.00
Chalk ..... *ton*	4.75	@ 5.00
Clay, Dixie ..... *ton*	20.00	@35.00
Blue ribbon (c. l. fcty.) .. *ton*	14.00	@
Blue Ridge, dark ..... *ton*	9.00	@
light ..... *ton*	12.00	@
Catalpo (facty.) ..... *ton*	35.00	@40.00
China ..... *lb.*	.01¾ @	.02½
English ..... *lb.*	.02 @	.02½
Langford ..... *ton*	12.00	@
Cotton flock, black ..... *lb.*	.12	@
light-colored ..... *lb.*	.13	@
white ..... *lb.*	.16 @	.30
Cotton linters clean mill run *lb.*	.05½ @	
Glue, high grade ..... *lb.*	.20 @	.29
medium ..... *lb.*	.18 @	.24
low grade ..... *lb.*	.14 @	.17
Graphite, flake ..... *lb.*	.06½ @	.12
Mica, amber (fact'y) ..... *lb.*	.05 @	
water ground ..... *lb.*	.07 @	.08
Pumice stone, powd. ..... *lb.*	.03 @	.05
Rotten stone (bbls.) ..... *lb.*	.02½ @	.04½
Slate flour (fact'y c. l.) ... *ton*	8.00 @	9.00
Soap bark, cut ..... *lb.*	.09¼ @	.09½
Soapstone ..... *ton*	15.00	@22.00
Sodium bicarb. (bbls.) .. 100 *lbs.*	2.00	@
Starch, powd. corn		
Buffalo ..... (bbls.) 100 *lbs.*	3.59	@
(bags) 100 *lbs.*	3.32	@
Talc, domestic ..... *ton*	16.00	@18.00
French ..... *ton*	38.00	@45.00
Terra blanche ..... *ton*	25.00	@30.00

Chemical Market—*Continued*

New York Quotations

October 26, 1925

Compounding Ingredients—*Continued*

Whiting, domestic No. 33 .. *ton*	$10.00	@
chalk, L. H. B. ..... *ton*	17.00	@25.00
commercial (facty.) 100 *lbs.*	.90	@ 1.00
English, cliffstone .... 100 *lbs.*	1.60	@ 3.50
gilders (bolted) ... 100 *lbs.*	1.25	@ 1.35
Nelco ..... *ton*	12.00	@22.50
Paris White ..... 100 *lbs.*	1.60	@ 2.00
Perfection ..... *ton*	13.00	@18.00
Quaker ..... *ton*	13.00	@15.00
Snow-white, E. L. B. ... *ton*	13.00	@17.00
Sussex ..... *ton*	8.00	@10.00
Westminster Brand ..... *ton*		@
Witco (c.l.) (fact'y) ... *ton*	12.00	@
Wood pulp, XXX (facty.) *ton*	35.00	@
X (facty.) *ton*	25.00	@

Mineral Rubber

Genasco (facty.) ..... *ton*	50.00	@52.00
Gilsonite (fact'y) ..... *ton*	37.14	@39.65
Granulated M. R. ..... *ton*	35.00	@45.00
Hydrocarbon, hard ..... *ton*	29.00	@35.00
Hydrocarbon, soft ..... *ton*	29.00	@35.00
Mineral flour ..... *ton*		@
Ohmlac Kapak, M-R ..... *ton*	70.00	@80.00
K-4 ..... *ton*	175.00	@
320/340 m. p. hydrocarbon *ton*	47.00	@52.00
300/310 m. p. hydrocarbon *ton*	42.00	@47.00
Paradura (fact'y) ..... *ton*	70.00	@72.50
Pioneer, M. R., solid (fac.) *ton*	42.00	@44.00
M. R. granular ..... *ton*	52.00	@54.00
Robertson, M. R. solid		
(facty.) ..... *ton*	35.00	@75.00
M. R. gran. (facty.) ... *ton*	42.00	@80.00

Oils (Softeners)

Avoilas compound ..... *lb.*	.12 @	.14
Castor, No. 1, U. S. P. ..... *lb.*	.16 @	
No. 3, U. S. P. ..... *lb.*	.15½ @	
Corn, crude (bbls.) ..... *lb.*	.09⅛ @	
Cotton, summer yellow ..... *lb.*	.099 @	
Cycline ..... *gal.*	.25 @	.31
Glycerine ..... *lb.*	.20 @	.20½
Linseed, raw ..... *gal.*	1.03 @	
Liquid rubber ..... *lb.*	.12 @	
Moldrite ..... *lb.*	.05 @	.06
Palm lagos ..... *lb.*	.09 @	
Palm, niger ..... *lb.*	.09¼ @	
Parra M. R. flux ..... *lb.*	.06 @	.07
Peanut, crude ..... *lb.*	.12½ @	
refined ..... *lb.*	.16 @	
Petrolatum, standard ..... *lb.*	.06 @	.08
Petrolatum, sticky ..... *lb.*	.08 @	.10
Pine, steam distilled ..... *gal.*	.62 @	.68
Rapeseed, refined ..... *gal.*	.96 @	
blown ..... *gal.*	1.18 @	
Rosin ..... *gal.*	.60 @	.80
Soya bean ..... *lb.*	.14¼ @	.14½
Synthecite ..... *lb.*	.06 @	
Tar ..... *gal.*	.28 @	.35
Woburn ..... *lb.*	.05 @	

Resins and Pitches

Pitch, Burgundy ..... *lb.*	$0.07½ @	
coal tar ..... *lb.*	.01¾ @	
Fluxol hardwood ..... *ton*	52.50	@80.00
pine tar ..... *lb.*	.04 @	
ponto ..... *lb.*	.07½ @	
Rosin, K (bbl.) ..... 280 *lbs.*	16.75 @	
strained (bbl.) ..... 280 *lbs.*	13.50 @	
Shellac, fine orange ..... *lb.*	.70 @	
Tar, pine, retort ..... *bbl*	16.00	@17.00
kiln ..... *bbl.*	16.00	@17.50

Solvents

Benzol (90%, 7.21 lbs. gal.) pure ..... *gal.*	.28 @	
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums) *lb.*	.06½ @	.07
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums) .. *lb.*	.07¼ @	.08
Gasoline No. 303		
Tankcars ..... *gal.*	.21 @	
Drums, c. l. ..... *gal.*	.24 @	
Drums, l. c. l. ..... *gal.*	.27 @	
Motor gas (steel bbls) *gal.*	.19 @	.20
Naphtha	@	
68° Bé., 122°, 324° ... *gal.*	.20 @	
70° Bé., 114°, 314° ... *gal.*	.21 @	
71° Bé., 112°, 304° ... *gal.*	.22 @	
Turpentine, spirits ..... *gal.*	1.15 @	
wood, steam distilled ... *gal.*	1.05 @	

Substitutes

Black ..... *lb.*	.08½ @	.15
Brown ..... *lb.*	.09 @	.18
White ..... *lb.*	.09 @	.17½
Brown T. K. ..... *lb.*	.10½ @	.14
White T. K. ..... *lb.*	.13½ @	.16½

Vulcanizing Ingredients

Sulphur chloride (drums) .. *lb*	.07 @	
Sulphur, soft rubber, 100% pure (c.l.) ..... 100 *lbs.*	2.35 @	2.60
(l.c.l.) 100 *lbs.*	2.65 @	2.90
Sulphur, Brooklyn brands		
Refined velvet (bbls.) 240 *lbs.*	2.60 @	3.15
(bags) 150 *lbs.*	2.35 @	2.90
Superfine flour (bbls.) 210 *lbs.*	2.35 @	2.90
(bags) 100 *lbs.*	1.95 @	2.50
rubber makers ..... *lb.*	.02¼ @	.03
Tire brand, superfine . 100 *lbs.*	2.00 @	2.25
Tube brand, velvet ... 100 *lbs.*	2.40 @	2.65

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com. *lb.*	.55 @	
carnauba ..... *lb.*	.30 @	.40
ceresine, white ..... *lb.*	.12 @	
montan ..... *lb.*	.06 @	.06½
ozokerite, black ..... *lb.*	.30 @	
green ..... *lb.*	.32 @	
Paraffin		
122/124 white crude scale . *lb.*	.05¾ @	
124/126 white crude scale . *lb.*	.05⅞ @	
120/122 fully refined ..... *lb.*	.06 @	
125/127 fully refined ..... *lb.*	.06¼ @	

Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

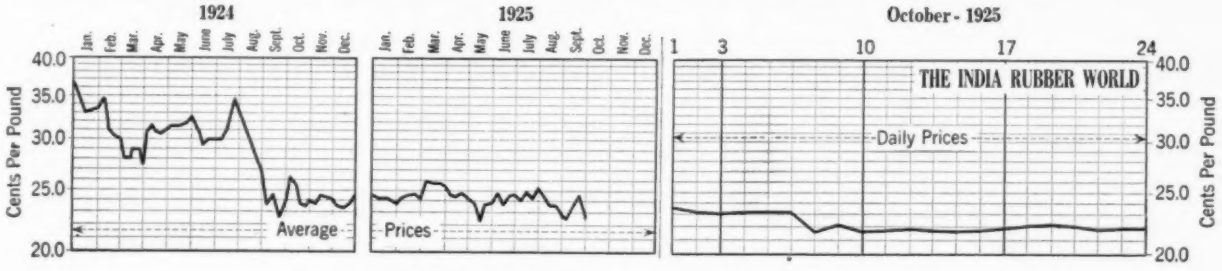
	High Pressure Pneumatic Casings					
	Cord			Fabric		
1925	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
January	3,562,701	1,999,410	1,618,169	1,498,309	1,009,201	908,260
February	4,105,082	1,996,488	1,458,136	1,710,425	944,168	718,626
March	4,369,673	2,000,939	1,708,352	1,836,228	738,625	616,350
April	4,035,061	1,816,641	2,012,794	1,700,699	562,449	661,907
May	3,610,304	1,815,969	2,266,073	1,461,301	480,339	714,728
June	2,870,827	1,894,704	2,610,409	1,033,840	439,397	869,058
July	2,502,055	2,181,645	2,479,160	658,814	447,145	809,290
August	2,895,254	2,409,070	1,999,548	527,108	377,813	516,985

	Balloon Casings			Solid and Cushion Tires		
1925	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
January	901,031	546,146	563,315	196,774	52,464	44,814
February	877,851	740,106	764,874	191,733	53,058	55,646
March	926,303	1,217,367	1,168,277	175,010	56,751	69,833
April	1,080,594	1,626,369	1,448,974	166,389	66,059	70,950
May	1,386,840	1,803,607	1,484,877	156,175	75,473	86,785
June	1,527,684	1,729,121	1,573,062	153,098	85,036	90,942
July	1,654,629	1,561,806	1,434,981	152,587	75,228	74,715
August	2,023,580	1,418,347	1,053,625	170,419	75,166	57,117

	High Pressure Inner Tubes			Balloon Inner Tubes		
1925	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
January	7,756,467	4,171,812	3,643,841	920,728	585,243	528,533
February	8,815,514	3,977,721	2,989,606	951,539	776,855	738,734
March	9,540,993	3,895,688	3,120,624	1,135,649	1,354,434	1,162,910
April	8,726,603	3,259,524	3,556,258	1,486,546	1,879,007	1,471,976
May	7,535,418	3,225,218	4,513,460	1,840,425	1,908,973	1,516,774
June	5,910,609	3,566,099	5,173,477	1,896,178	1,640,465	1,600,410
July	4,677,647	4,297,495	5,357,295	1,798,919	1,360,719	1,497,747
August	4,970,360	4,436,578	4,102,160	1,982,971	1,276,717	1,089,752

Compiled from Rubber Association figures.

	Cotton and Rubber Consumption in casings, tubes, solid and cushion tires	
1925	Cotton Fabric Pounds	Crude Rubber Pounds
January	12,310,822	42,170,869
February	13,363,986	41,720,847
March	15,040,609	46,365,630
April	14,902,337	48,154,633
May	14,984,561	47,639,298
June	15,840,498	53,366,781
July	16,013,761	53,197,164
August	15,758,123	52,170,657



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The outstanding features of the cotton market of the past month were the declines due to the government semi-monthly reports of crop conditions as of October 1 and 18. The crop forecast of each report was unexpectedly greater than private estimates. Spot middlings were quoted at 23.55 cents October 1 and remained above 23 cents until the government's forecast of 14,759,000 bales appeared. The market promptly declined below 22 cents reaching 21.6 cents October 15 from which level it rose in a few days to 22.15 cents, again declining due to the uncertainty of the approaching second report, which when it appeared took the market again by surprise in forecasting a crop of 15,226,000 bales, the third largest crop known and the largest produced since the season of 1914-15 when 16,134,000 bales were raised.

Sentiment immediately following the report was extremely bearish and materially lower prices were predicted, as the market slumped to 20.75 cents a pound October 26.

PIMA COTTON. The Arizona Pima crop has been reduced in both grade and quantity by recent rains which are most unprecedented in that district during this season of the year. It now looks as though the final ginnings may be less than 15,000 bales. The staple and character have thus far appeared excellent.

EGYPTIAN COTTON. Egyptians have weakened in sympathy with New York but are still too high as compared with American staples to arouse much interest from spinners. Present indications are that the crop of Sakel will prove somewhat less than a half million bales and that of Uppers somewhat over that number. The character and staple of both growths are reported as being satisfactory, although some mixed lots of Sakels have already appeared.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The demand continues strong for all weights of duck for mechanical purposes. Owing to this and the continued curtailment of production by southern mills owing to drouth, stocks of duck are unlikely to accumulate.

RAINCOAT FABRICS. The market for raincoat fabrics presents no unusual features. Trade is seasonal and prices unchanged.

SHEETINGS. Stocks at mills are fairly well sold out and manufacturers are in a comfortable position with regard to orders in hand. The market is very firm. Buyers are bidding less than market prices and such bids are being declined at the mills.

TIRE FABRICS. Tire fabrics mills are well sold up for a good volume of deliveries through June of next year. Tire output generally has been reduced about 20 to 25 per cent at which rate the fabric consumption will not overtax the fabric mills.

The market continues to develop in activity and trading volume. Prices are not substantially higher even under the stimulus of increased demand, but show a tendency to improve owing to orders for deliveries extending in many instances through the first quarter of 1926. It is expected that the attitude of manufacturers in their quotations for new business will lead to a firm price condition over the next five months, with desirable merchandise of a specialty character scarce for near-by deliveries.

Early deliveries are difficult to arrange. Less interest is being shown in spot and business is mainly confined to American cotton styles. A better fabric outlook is indicated by the fact that the marked tendency of motorists to use underinflated balloon tires is requiring their replacement at 10,000 miles service instead of permitting their normal service of 15,000 miles.

New York Quotations

October 26, 1925

Drills

38-inch 2.00-yard	*yard*	$0.20½@
40-inch 3.47-yard		.12½@
52-inch 1.90-yard		.22⅛@
60-inch 1.52-yard		.27⅜@

Duck

38-inch 2.00-yard	*yard*	.21½@
40-inch 1.47-yard		.29¼@
72-inch 16.66-ounce		.52⅛@
72-inch 17.21-ounce		.53¾@
MECHANICAL		
Hose and belting	*pound*	.41 @
Specials		.45 @
TENNIS		
52-inch 1.35-yard	*yard*	.33½@

Hollands

DEAD FINISH		
Standard, 37-inch	*yard*	.19½@
42-inch		.23½@
RED SEAL		
36-inch		.18 @
40-inch		.19 @
50-inch		.30 @
FLAT FINISH		
Imperial, 36-inch		.15½@
40-inch		.17½@

Osnaburgs

40-inch 2.35-yard	*yard*	.18⅜@
40-inch 2.48-yard		.17½@
40-inch 3.00-yard		.14¼@
37-inch 2.42-yard		.17¾@

Raincoat Fabrics

COTTON		
Bombazine 64 x 60	*yard*	.13 @
Bombazine 60 x 48		.12 @
Plaids 60 x 48		.12¼@
Plaids 56 x 44		12¼@
Surface prints 60 x 48		13 @
Surface prints 64 x 60		.14 @

Sheetings, 40-inch

40 x 48, 2.50-yard	*yard*	.15 @
48 x 48, 2.85-yard		.13 @
64 x 68, 3.15-yard		.14¼@
56 x 60, 3.60-yard		.12¼@
48 x 44 3.75-yard		.11⅛@

Sheetings, 36-inch

48 x 48, 5.00-yard	*yard*	$0.08¼@
40 x 40, 6.15-yard		.07 @

Tire Fabrics

SQUARE WOVEN 17¼-ounce		
Egyptian, karded	*pound*	.58 @.60
Peeler, karded		.47 @.48
CORD 23/5/3		
Egyptian, combed	*pound*	.70 @.73
Egyptian, karded		.60 @.63
Peeler, combed, 1 3/16-in.		.67 @.69
Peeler karded, 1 1/16-in.		.49 @.52
CORD 13/3/3		
Peeler karded	*pound*	.47 @
LENO BREAKER		
8-oz. Peeler, karded	*pound*	.48 @.49
10-oz. Peeler, karded		.48 @.49
CHAFER		
8.25-oz. Peeler, karded (2 ply)	*pound*	.46 @.47
9.5 oz. Peeler, karded (4 ply)		.48 @.50
12-oz. Peeler, karded		.48 @.49
14-oz. Peeler, karded		.48 @.49

The Cotton Outlook

United States Crop Estimate

THE United States Crop Reporting Board estimates as of October 18 a total cotton production of 15,226,000 equivalent 500-pound bales, as compared with an indicated yield of 13,931,000 bales on September 16, 13,990,000 bales on August 16, 13,566,000 bales on August 1, and an actual yield of 13,627,936 bales last year and 10,139,671 bales in 1923.

The chief cause of the improved prospect of the crop is that September rains revived drought-stricken plants to an unexpected extent, especially in regions west of the Atlantic states.

Reports from every part of the cotton belt, embracing all factors as of October 18, indicate a probable yield of 164.7 pounds of lint cotton per acre, as compared with 143.5 pounds on September 16, and a final estimated yield for 1924 of 157.4 pounds.

Ginnings of this year's crop prior to October 18, counting round as half bales and excluding linters, totaled 9,519,784 bales, compared with 7,615,981 to that date in 1924.

Crop Estimate Shocks Cotton Trade

While publication of the government's high crop estimate came as a distinct shock to the cotton trade, and might have immediately demoralized the market but for the large number of scale buying orders, Secretary of Commerce Hoover, in discussing the report, declared that if world conditions stay upon an even keel he foresees an easy absorption of the whole crop. The Bureau of Agricultural Economics, Department of Agriculture, declared that a survey of world market conditions indicates that present prospects for marketing the 1925 crop are relatively good.

Criticism of Government Forecasts

For some time past there has been considerable criticism of the government forecasts from various branches of the cotton trade. It has been freely asserted that the frequency of the reports tended to upset rather than steady the market, and that their inaccuracy has further accentuated this effect. Efforts have been made without success to have the earlier reports omitted or published less frequently.

The fact that the government reports have at times differed considerably from private reports which have been reliable in the past has elicited widespread comment, specially the great increase in the crop forecast as of October 18. While this is attributed by the Crop Reporting Board to plant revival by rains in September, the trade recalls similar increases in the late forecasts last year and asserts that in both years the government placed initial estimates much too low and later had to mark them up.

Private Estimates

For some time past most private estimates have indicated a crop very near 14,000 bales or somewhat more. These estimates have been based on three principal facts. This year's acreage is record breaking, and no very large yield per acre would be required to produce a crop in excess of several government estimates prior to October 1. The damage to the crop by the boll weevil has been unusually small this year. Weather conditions were favorable during the early part of the season. It has also been a recognized fact that a crop under 14,000,000 bales would mean higher prices, but that a crop of 14,500,000 bales would bring lower prices.

Most private estimates are somewhat below the government forecast. As of September 25 the *Journal of Commerce* estimates the crop condition at 55.2 per cent, a drop of 2.3 per cent from the August condition figure, and estimates the total crop at 14,702,047 bales.

The *Daily News Record* estimate as of October 1 is 14,301,000 bales.

Among other private estimates may be mentioned that of Hopkins, Dwight & Co., 14,400,000 bales; Procter & Gamble, 14,650,000 bales.

Supply and Demand

Assuming that the crop will be well above 14,000,000 bales, supply and demand appear to be in sufficiently close balance to indicate a rather stable price level. Any variation tendency would probably be toward a lower level, because foreign stocks of American cotton have been replenished, competition of foreign cotton is likely to be somewhat keener, and style tendencies are such as to reduce the quantity of cotton demanded.

The best available estimates indicate that the mills of the world are consuming American cotton at the rate of over 14,000,000 bales annually. In the first six months of this year the estimated consumption was 7,022,000 bales, against 6,232,000 bales last year. It is evident, therefore, that textile conditions are returning to the pre-war level, when the annual consumption in the mills of the world was over 14,500,000 bales.

The activity of foreign mills has been gaining, notably in England and Japan. French mills are also operating at a high rate. Exports have continued large despite heavy movements last season. For the season to date they have run about 164,000 bales over the same period last year.

Increasing spindle activity is anticipated in the United States. The fact that yarn prices seem to have reached a stable basis and that only small fluctuations with raw cotton are now probable will help materially in this direction.

Owing to early marketing of the crop the world stocks of cotton are rather large. Of the total visible world supply of 3,883,000 bales at the end of September, 2,805,000 bales were American, compared with 1,970,000 bales last year. This amount is less than it was in 1921 and 1922, which were years of relatively small crops, but stocks are not too large in view of current high consumption.

Maintaining Pima Quality

Great efforts are being made by the Arizona Pima Cotton Growers' Association to prevent any deterioration in quality of Arizona Pima cotton, which is held by experts of the Department of Agriculture to be at present the best substitute for Egyptian cotton. About half the valley cotton, or about 23,000 acres, has been kept up to standard by persistent roguing and inspection, and the growers who paid for this work have received no material reimbursement for their expense and trouble. The association is now attempting to secure the cooperation of cotton buyers in the work.

California's Million Acre Cotton Project

In order to stimulate cotton growing in California the California Development Association has been conducting a series of conferences in various key cities in the cotton growing districts of the state. As a result of the interest manifested leaders in this new California industry confidently predict that a million acres of cotton will be planted in the state in the near future.

Normandy Lace Toilet Sets

These sets are made with Normandy lace inserts, the various pieces being of standard size and good quality. The hair brush used is the "Hughes Ideal Brush," of excellent bristle set in rubber which can be easily removed and replaced. The number of pieces to the set varies from three to nineteen.—William Schimper & Co., 33 Union Square, West, New York, N. Y.

Metal Market Review

New York

The markets are all strong and moderately active, copper representing the only laggard metal. There have been a number of favorable developments in steel, illustrating both the volume of new business and the probability of a high rate of operations for the remainder of the year. The industry is now close to a production schedule of 80 per cent of capacity, and the steadiness of the trade is remarkable.

ALUMINUM. Prices for virgin metal, 98 to 99 per cent pure, remain unchanged at 27 to 28 cents a pound.

ANTIMONY. The spot market continues firm, while the October-November shipment from China is quoted at 16.75 cents to 17 cents, New York, duty paid.

COPPER. Consumption of copper is still very heavy, but the world production is gaining slightly. Due to advances in London, there was a flurry in the American market during the middle of October, but the increase was short-lived. American producers are, however, said to be making good profits at present levels, and the October output has been well sold.

LEAD. Lead buying continues in good volume, while the character of the demand is said to be of that steadiness which permits sure and certain profits. The American Smelting & Refining Co. is still naming 9½ cents, New York, as the price for lead, this making over a month and a half that this figure has prevailed.

STEEL. The present rate of steel ingot production, according to *The Wall Street News*, is 22 per cent above the average in the past six calendar years since the war. A continuance of the present rate to the end of the year would make the year's production only about 1 per cent under the highest record in the whole history of the steel industry and two and one-quarter times the production of 1921.

TIN. Following increased activity in the London market, the price for tin rose to 62½ cents a pound during the last of the month. This represented the highest figure reached in more than five years, the high last year being 59 cents, the record price since 1920.

ZINC. Prices throughout October continued steadily to advance. There are increasing evidences of a scarcity of zinc in Europe, with prospects for larger and larger shipments of American zinc abroad.

Basic Metals

October 26, 1925

	Cents per pound	
Aluminum, virgin, 98@99 per cent	27.00	@28.00
Antimony	18.50	@18.75
Copper—Lake, spot	14.675	@14.75
Electrolytic, spot	14.625	@
Castings, refinery	14.125	@
Lead, spot, New York	9.50	@ 9.60
Lead, spot, East St. Louis	9.25	@ 9.30
Tin, spot	64.125	@
Zinc, spot, New York	9.00	@ 9.05
Zinc, spot, East St. Louis	8.65	@ 8.70

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER

	Cents per pound	
Bright basic	4.25	@
Annealed soft	4.50	@
Galvanized annealed	5.15	@
Coppered basic	5.15	@
Tinned soft Bessemer	6.15	@

*Regular extras for lighter gage.

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	17.00	@
No. 6 B. & S. gage	17.00	@
No. 8 B. & S. gage	17.00	@
No. 14 B. & S. gage	18.00	@

Report of Rims Inspected and Approved by The Tire and Rim Association of America, Inc.

Size	September, 1925 Number	Per Cent	First 9 Months 1925 Number	Per Cent
Clincher Rims				
24 x 3	1,651	0.1	10,536	0.1
26 x 3	7,596	0.4	73,466	0.4
28 x 3	537	0.0	2,581	0.0
30 x 3	.....	...	197,441	1.0
30 x 3½	350,103	17.4	3,721,104	19.0
31 x 4	10,944	0.5	564,191	2.9
Straightside Rims (Pass.)				
25 x 3½	.....	...	460	0.0
27 x 3½	706	0.0	2,372	0.0
28 x 3½*	541,467	24.9	5,953,786	30.3
29 x 3½*	.....	...	144,390	0.7
30 x 3½	31,395	1.6	539,156	2.2
32 x 3½	1,106	0.1	20,729	0.1
28 x 4*	288,381	14.3	2,398,346	12.2
29 x 4*	181,587	9.0	1,245,927	6.3
30 x 4*	.....	...	287,464	1.5
31 x 4	.....	...	1,515	0.0
32 x 4	27,824	0.4	232,638	1.2
33 x 4	4,779	0.2	18,162	0.1
34 x 4	.....	...	503	0.0
29 x 4½*	44,356	2.2	404,705	2.1
30 x 4½*	223,738	11.1	1,254,592	6.4
31 x 4½*	5,406	0.3	245,976	1.3
32 x 4½	73,797	3.7	501,405	2.6
33 x 4½	602	0.0	1,854	0.0
34 x 4½	3,409	0.2	83,311	0.4
36 x 4½	.....	...	154	0.0
30 x 5*	32,162	1.6	294,340	1.1
31 x 5*	51,243	2.5	397,198	2.0
33 x 6*	17,993	0.6	58,585	0.3
Truck Rims				
30 x 5	122,169	6.1	681,302	3.5
34 x 5	8,519	0.4	86,133	0.4
32 x 6	16,631	0.8	115,386	0.6
36 x 6	8,986	0.4	53,636	0.3
34 x 7	3,886	0.2	20,493	0.1
38 x 7	815	0.0	7,211	0.0
36 x 8	721	0.0	9,227	0.0
40 x 8	1,766	0.0	10,582	0.1
40 x 10	.....	...	606	0.0
44 x 10	.....	...	571	0.0
Totals	2,064,275	100.0	19,641,984	100.0

	Per Cent		Per Cent
Motorcycle	0.5	Motorcycle	0.5
Clincher	17.9	Clincher	22.9
Balloon	66.5	Balloon	64.2
Regular S. S.	7.2	Regular S. S.	7.4
Truck 20"	7.1	Truck 20"	4.3
Truck 24"	0.8	Truck 24"	0.7

*Balloon casings.

SURVEY OF DEALERS' TIRE AND TUBE STOCKS

The third semi-annual survey by the Department of Commerce, as of October 1, 1925, of the stocks of automobile tires and inner tubes held by dealers in the United States, is now available in fairly complete form. The comparison with official compilations of the year previous is as follows:

DEALERS' STOCKS OF AUTOMOBILE TIRES

	October 1, 1925 Number	Dealers Reporting	Average per Dealer	October 1, 1924 Number	Dealers Reporting	Average per Dealer
Total casings	1,837,862	32,830	56.0	1,402,879	26,161	53.6
Balloon casings	258,783	14,900	17.4	135,366	8,305	16.3*
Inner tubes	3,210,384	32,767	98.0	2,197,553	27,480	79.9
Solid and cushion tires	45,176	1,935	23.3	30,538	1,449	21.1**

(* Including interchangeable balloons for October 1, 1924;
** Solid tires only for October 1, 1924.)

The following analysis of reports thus far received in the present survey shows that about the same percentages of large and small dealers reported as in the survey of October 1, 1924:

DEALERS CLASSIFIED BY VOLUME OF STOCK

Casings	Per Cent of Total October 1, 1923	Dealers Reporting October 1, 1924
Less than 10	22.80	23.19
From 10 to 25	22.80	23.19
26 to 50	21.30	22.65
51 to 100	14.65	13.70
101 to 200	7.00	5.49
201 to 300	1.95	1.44
301 to 400	.78	.52
401 to 1000	1.21	.64
Above 1,000 casings	.39	.26
	100.00	100.00

Exports of India Rubber Manufactures from the

EXPORTED TO	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Waterproofed Auto Cloth and Rubberized Fabrics Value
EUROPE												
Austria	$510	$142	.....	.....	7,800	$16,833	6,156	$10,218	16,632	$33,594	.....	.....
Azores & Madeira Islands	.....	.....	.....	.....	.....	.....	.....	.....	92	116	.....	.....
Belgium	4,001	591	$2,979	$12,483	468	1,450	1,148	681	756	1,868	.....	.....
Czechoslovakia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$34	$51
Denmark	3,444	1,778	206	.....	6,305	18,860	4,256	7,637	.....	.....	.....	.....
Esthonia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Finland	1,266	767	.....	.....	.....	.....	.....	.....	.....	.....	1,166	250
France	4,155	5,927	777	50,482	189	594	.....	.....	24	22	121	1,077
Germany	.....	351	.....	.....	216	704	3,024	3,544	346	706	.....	3,135
Greece	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	566
Iceland & Faroe Islands	.....	.....	.....	.....	1,981	3,367	4,125	6,324	.....	.....	.....	.....
Irish Free State	.....	116	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Italy	2,757	883	69	13,987	816	3,677	9,735	9,340	36	81	.....	1,911
Latvia	492	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta, Gozo and Cypress Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Netherlands	859	3,145	730	.....	.....	.....	.....	.....	.....	.....	907	617
Norway	2,821	1,338	2,700	2,618	1,076	2,590	21,625	12,609	2,784	1,804	3,696	531
Poland and Danzig	.....	448	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portugal	.....	.....	.....	.....	.....	.....	2,414	2,134	.....	.....	.....	339
Rumania	.....	212	54	.....	828	1,656	1,932	1,852	216	345	.....	.....
Russia in Europe	.....	.....	.....	1,226	.....	.....	.....	.....	.....	.....	.....	.....
Spain	3,343	505	.....	.....	.....	.....	.....	.....	.....	.....	40	.....
Sweden	10,924	1,379	.....	950	1,920	6,884	6,192	1,833	.....	.....	4,488	244
Switzerland	425	281	20	.....	120	474	1,888	1,436	850	1,704	.....	.....
Turkey in Europe	.....	.....	.....	.....	.....	.....	1,300	1,116	5,600	2,965	.....	.....
United Kingdom	15,043	22,991	3,149	42,971	70,788	126,045	56,817	38,415	14,746	14,682	6,754	25,899
Yugoslavia, Albania, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, EUROPE	$50,040	$40,854	$10,684	$124,717	92,507	$183,094	120,612	$96,589	42,082	$57,887	$17,206	$34,620
NORTH AMERICA												
Canada	$49,502	$12,234	$17,481	$11,667	302	$986	220	$736	129	$293	$2,994	$16,873
British Honduras	.....	24	.....	.....	.....	.....	.....	.....	183	174	.....	17
Costa Rica	.....	711	.....	.....	.....	.....	.....	.....	288	233	2,541	95
Guatemala	402	2,119	44	.....	.....	.....	48	92	2,633	2,101	1,531	.....
Honduras	115	512	149	.....	.....	.....	36	26	472	356	673	.....
Nicaragua	200	1,055	430	.....	.....	.....	54	46	4,861	3,731	220	.....
Panama	469	918	.....	.....	36	68	3,194	3,118	8,327	3,585	1,022	507
Salvador	224	817	107	.....	.....	.....	402	219	912	568	2,261	124
Mexico	28,897	19,974	8,184	265	139	509	636	648	34,877	28,079	12,494	1,988
Miquelon & St. Pierre Islands	.....	.....	.....	.....	302	1,485	.....	.....	.....	.....	.....	.....
Newfoundland and Labrador	1,152	971	40	.....	1,534	4,731	8,455	6,814	240	137	821	29
Bermuda	6	113	71	.....	.....	.....	.....	.....	1,039	903	83	.....
Barbados	.....	.....	.....	.....	.....	.....	.....	.....	24	54	26	288
Jamaica	22	392	.....	.....	.....	.....	360	648	8,367	6,958	293	80
Trinidad and Tobago	.....	314	325	.....	.....	.....	198	102	5,545	2,355	460	428
Other British West Indies	.....	398	12	.....	.....	.....	216	119	1,794	1,638	.....	26
Cuba	4,610	10,827	16,029	.....	72	216	.....	.....	53,114	28,297	5,537	5,503
Dominican Republic	70	2,140	1,733	.....	.....	.....	48	31	14,400	9,830	255	320
Dutch West Indies	.....	3,101	65	.....	.....	.....	.....	.....	20,774	13,558	201	.....
French West Indies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haiti	138	146	24	.....	.....	.....	.....	.....	6,308	4,923	311	96
Virgin Islands of U. S.	.....	2	.....	.....	.....	.....	.....	.....	322	352	10	.....
TOTALS, NORTH AMERICA	$85,807	$56,763	$44,694	$11,932	2,535	$8,045	13,777	$12,599	164,610	$108,125	$31,733	$26,374
SOUTH AMERICA												
Argentina	$16,645	$14,702	$3,757	.....	.....	.....	.....	.....	78,973	$39,634	$1,341	$16,142
Bolivia	1,590	443	.....	.....	48	$269	.....	.....	.....	.....	81	.....
Brazil	26,824	2,249	2,475	$230	.....	.....	3,100	$1,816	248	294	.....	5,979
Chile	38,831	3,085	2,140	.....	166	744	.....	.....	105	185	84	.....
Colombia	.....	4,363	1,801	.....	24	112	430	525	7,951	6,032	5,682	2,286
Ecuador	.....	517	.....	.....	.....	.....	.....	.....	4,869	3,442	842	69
British Guiana	.....	1,636	.....	.....	.....	.....	.....	.....	.....	.....	.....	130
Dutch Guiana	.....	141	.....	.....	.....	.....	36	12	24	14	.....	.....
Paraguay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Peru	3,263	2,609	558	.....	42	300	.....	.....	593	509	316	.....
Uruguay	997	154	83	.....	.....	.....	3,200	3,200	14,371	8,852	2,037	662
Venezuela	612	2,553	1,634	.....	.....	.....	.....	.....	.....	.....	2,609	1,066
TOTALS, SOUTH AMERICA	$88,762	$32,452	$12,448	$230	274	$1,425	6,766	$5,553	107,134	$58,962	$12,992	$26,334
ASIA												
Aden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British India	$7,086	$1,444	$267	.....	216	$657	3,879	$2,637	8,245	$7,561	$156	$812
Ceylon	178	283	.....	.....	.....	.....	.....	.....	456	274	.....	787
Straits Settlements	46	.....	.....	.....	.....	.....	.....	.....	2,659	2,830	.....	858
China	2,513	192	709	.....	14	55	5,026	4,054	1,488	1,888	407	2,388
Chosen	.....	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Java and Madura	1,046	282	791	.....	.....	.....	113	162	.....	.....	.....	1,777
Other Dutch East Indies	419	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
French Indo China	.....	.....	.....	.....	.....	.....	.....	.....	862	716	.....	.....
Hejaz, Arabia, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hongkong	.....	28	.....	.....	.....	.....	1,656	1,285	880	740	.....	.....
Japan	2,631	7,909	7,447	$11,630	2,484	6,919	2,232	2,257	.....	.....	.....	.....
Kwangtung, leased territory	.....	.....	.....	.....	1,008	2,500	1,726	1,020	.....	.....	.....	127
Palestine and Syria	34	237	.....	.....	.....	.....	23	16	.....	.....	.....	.....
Philippine Islands	7,298	5,270	1,896	.....	.....	.....	.....	.....	40,108	25,481	2,944	1,922
Russia in Asia	.....	.....	.....	.....	24	216	.....	.....	.....	.....	.....	.....
Siam	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other Asia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, ASIA	$21,251	$15,673	$11,128	$11,630	3,746	$10,347	14,655	$11,431	54,698	$39,490	$3,507	$8,671
OCEANIA												
Australia	$5,177	$6,401	$4,238	.....	876	$2,356	6,205	$6,211	10,855	$9,657	.....	$8,858
British Oceania	.....	.....	.....	.....	.....	.....	.....	.....	382	327	.....	.....
French Oceania	.....	.....	.....	.....	.....	.....	.....	.....	803	718	$37	.....
New Zealand	2,727	2,787	1,245	.....	78	400	50	25	264	318	330	2,484
Other Oceania	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, OCEANIA	$7,904	$9,198	$5,483	.....	954	$2,756	6,255	$6,236	12,304	$11,020	$367	$11,342

United States by Countries During August, 1925

Waterproofed Outer Garments Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Solid Tires: Automobile and Motor Truck Number	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Tire Rubber Accessories, Repair Materials Value	Hard Rubber Goods: Electrical Supplies Value	Hard Rubber Goods: Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
.....	23	$156	.....	$1,200	.....	.....	.....	.....	$1,749	.....	$663	.....	$63	.....	.....
.....	72	1,346	.....	112	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	3,256	41,655	.....	5,694	.....	8	$507	.....	1,392	.....	.....	$59	279	$493	.....
.....	397	9,023	.....	1,993	.....	20	1,560	.....	.....	.....	.....	.....	.....	.....	.....
.....	12,919	112,771	$52	19,848	.....	176	4,231	.....	3,594	.....	21	.....	1,642	68	$634
.....	6	178	.....	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1,210	19,145	.....	3,233	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,266
$40	3,995	72,257	.....	3,132	.....	20	322	.....	4,684	$570	9,288	1,461	1,732	2,758	286
.....	968	20,471	.....	4,155	$29	5	272	.....	1,748	.....	.....	501	3,517	.....	5,771
329	1,150	16,839	.....	3,027	.....	104	3,183	.....	1,567	.....	.....	.....	.....	.....	208
.....	169	2,364	.....	226	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	70	531	.....	49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	300	3,059	.....	542	.....	.....	.....	.....	1,562	.....	.....	126	1,846	.....	586
.....	214	4,029	.....	470	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	19	290	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	6,223	93,759	848	7,267	92	.....	.....	.....	2,511	.....	1,127	.....	1,796	.....	696
.....	3,175	47,016	45	5,247	65	210	11,923	.....	1,768	.....	.....	.....	469	.....	1,052
.....	331	6,176	.....	2,951	.....	.....	.....	.....	201	.....	.....	.....	27	.....	.....
.....	488	4,484	.....	929	.....	24	994	.....	414	.....	51	120	197	.....	256
.....	222	2,740	.....	419	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	115
.....	282	5,038	.....	1,225	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	2,306	34,784	.....	5,608	.....	87	3,712	$81	2,776	.....	224	144	440	28	.....
.....	10,902	221,577	254	19,744	78	4	60	.....	647	.....	73	.....	555	33	178
.....	42	582	.....	.....	.....	.....	.....	.....	.....	.....	.....	224	955	27	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
1,979	23,249	283,160	8,565	18,715	.....	2,315	49,086	196	7,984	.....	23,372	10,426	49,327	4,090	34,152
.....	549	6,157	72	1,999	37	12	363	.....	260	.....	.....	.....	.....	.....	.....
$2,348	72,537	$1,009,587	$9,836	$107,807	$301	2,985	$76,263	$277	$32,858	$570	$34,819	$13,061	$62,845	$7,497	$45,304
$5,314	1,641	$37,543	$779	$3,742	$300	68	$2,143	$248	$17,455	$10,289	$9,999	$491	$26,727	$309	$12,411
169	10	121	.....	25	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....
1,031	47	784	.....	76	.....	2	33	.....	2	.....	2	43	225	.....	141
131	692	11,425	.....	950	.....	.....	.....	63	99	.....	21	17	341	4	199
936	27	681	.....	64	.....	18	782	.....	.....	.....	12	.....	51	.....	74
236	16	336	.....	83	.....	.....	.....	.....	47	.....	25	33	81	.....	.....
880	978	15,624	358	1,469	.....	30	621	.....	120	.....	46	53	799	286	257
.....	177	3,873	.....	539	.....	60	2,009	.....	100	16	.....	.....	49	.....	.....
3,997	5,678	77,266	2,702	16,105	270	155	5,054	275	4,674	722	818	581	1,961	197	6,517
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,502	342	4,316	.....	437	.....	10	370	522	.....	.....	.....	.....	406	.....	12
.....	.....	.....	37	.....	.....	.....	.....	536	.....	.....	.....	.....	.....	95	.....
.....	66	551	.....	112	.....	59	1,112	.....	59	.....	.....	.....	.....	.....	.....
219	133	1,526	.....	330	.....	61	1,190	.....	45	45	.....	47	.....	.....	46
14	164	2,007	.....	226	.....	19	483	.....	47	.....	.....	.....	63	.....	.....
54	68	1,438	149	35	.....	.....	.....	52	.....	.....	.....	.....	.....	.....	.....
3,649	8,436	92,324	694	15,896	510	994	32,120	80	5,106	145	466	541	4,470	.....	1,166
2,112	1,098	11,157	.....	2,405	.....	114	2,739	633	193	.....	.....	4	478	.....	21
645	233	2,913	54	542	.....	6	90	.....	58	.....	.....	.....	.....	.....	27
.....	16	225	.....	.....	.....	6	200	.....	.....	.....	.....	.....	.....	.....	.....
.....	400	7,506	56	1,531	86	4	216	.....	85	139	86	19	38	.....	68
35	77	742	.....	253	.....	8	250	.....	90	.....	.....	.....	.....	.....	.....
$20,924	20,299	$272,258	$4,809	$44,820	$1,166	1,614	$49,412	$2,409	$28,180	$11,356	$11,475	$1,829	$35,692	$891	$20,939
$27	14,423	$171,889	.....	$33,709	$167	398	$13,567	$644	$9,210	$14	$536	$1,024	$8,418	$4,935	$3,266
724	295	3,840	.....	103	.....	.....	.....	.....	.....	.....	.....	.....	132	6	973
2,049	5,022	52,925	.....	4,085	.....	172	3,670	.....	1,481	.....	.....	481	165	465	546
.....	1,256	27,217	.....	2,881	.....	58	5,470	213	477	.....	175	.....	1,354	183	49
562	909	14,735	$108	3,282	12	70	3,178	389	503	.....	.....	641	1,121	.....	787
.....	247	4,586	.....	453	.....	.....	.....	.....	26	.....	.....	459	237	.....	489
.....	3	30	.....	.....	.....	.....	.....	.....	34	.....	.....	.....	.....	.....	53
.....	8	88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	85	1,225	.....	108	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
113	2,028	36,587	.....	6,733	114	106	3,153	.....	1,401	.....	.....	71	207	.....	269
645	2,487	37,719	.....	4,649	.....	16	1,662	3	835	.....	.....	480	1,108	526	1,657
.....	3,026	43,116	150	7,755	20	.....	.....	196	468	.....	61	708	348	.....	54
$4,120	29,789	$393,957	$258	$63,758	$323	820	$30,705	$1,445	$14,435	$14	$772	$3,864	$13,090	$6,115	$8,143
.....	185	$2,669	.....	$299	.....	4	$392	.....	.....	.....	.....	.....	.....	.....	.....
.....	2,287	26,243	.....	2,905	.....	487	11,477	$11,999	$2,009	$1,052	.....	$13	$329	.....	$10,045
.....	628	13,899	.....	705	.....	216	2,814	218	327	.....	.....	.....	40	.....	536
.....	2,267	18,556	.....	95	.....	38	1,303	.....	20	.....	.....	.....	.....	.....	125
.....	1,390	15,750	$676	2,463	.....	79	1,343	.....	405	296	$254	3,216	422	.....	858
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	.....	.....	.....
$209	715	9,244	.....	884	.....	202	5,387	8,311	234	.....	.....	.....	.....	$431	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35
.....	568	6,314	.....	675	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	79	.....	.....	.....	.....	.....	.....
.....	8,645	84,667	.....	12,531	.....	1,022	16,315	.....	1,661	536	2,420	659	3,057	.....	.....
.....	20	170	.....	79	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
160	840	14,710	.....	1,855	.....	.....	.....	.....	653	.....	.....	.....	266	.....	100
9,626	10,485	103,917	92	15,641	.....	577	15,933	12,129	1,692	247	757	356	840	.....	1,930
139	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79	.....	150
.....	8	216	.....	70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$10,134	28,079	$296,349	$768	$38,202	.....	2,625	$54,964	$32,657	$7,080	$2,131	$4,324	$4,368	$5,341	$431	$13,362
$92	5,807	$83,055	.....	$9,412	.....	1,150	$29,032	$433	$7,500	$4,144	.....	$457	$6,002	$4,094	$5,455
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76	.....	.....	.....	.....	25
.....	15	406	.....	49	.....	10	415	.....	12	.....	.....	.....	.....	.....	.....
134	7,313	88,357	.....	10,741	.....	270	9,802	18	3,257	963	$36	.....	2,050	7,719	4,720
.....	18	337	$19	55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
$226	13,153	$172,155	$19	$20,257	.....	1,430	$39,249	$451	$10,769	$5,183	$36	$457	$8,052	$11,813	$10,213

Exports of India Rubber Manufactures from the

EXPORTED TO AFRICA	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Waterproofed Auto Cloth and Rubberized Fabrics Value
Belgian Kongo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British West Africa	.....	$18	.....	.....	.....	.....	.....	.....	.....	.....	.....	$114
British South Africa	$1,627	12,167	$1,360	.....	483	$1,277	228	$315	2,249	$1,753	$1,641	1,802
British East Africa	.....	414	.....	.....	.....	.....	.....	.....	.....	.....	.....	166
Canary Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	279	129
Egypt	200	.....	.....	.....	.....	.....	.....	.....	74	72	.....	257
Algeria and Tunis	1,500	4,166	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other French Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liberia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morocco	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	209
Portuguese East Africa	.....	.....	1,019	.....	12	34	.....	.....	126	102	.....	.....
Other Portuguese Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spanish Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, AFRICA	$3,327	$16,765	$2,379	.....	495	$1,311	228	$315	2,449	$1,927	$1,920	$2,677
GRAND TOTALS	$257,091	$171,710	$86,816	$148,509	100,511	$206,978	162,293	$132,723	383,277	$277,411	$67,725	$110,018

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	August, 1925 Pounds	August, 1925 Value	Eight Months Ended August, 1925 Pounds	Eight Months Ended August, 1925 Value
UNMANUFACTURED—*Free*				
Crude rubber	74,844,042	$39,834,348	578,203,230	$221,663,832
Balata	95,671	58,637	503,448	248,901
Jelutong or Pontianak	1,288,937	144,121	11,766,805	1,224,131
Gutta percha	112,005	9,830	2,116,779	321,187
Guayule	872,580	200,411	5,002,437	964,448
Rubber scrap	2,774,596	103,723	14,323,199	573,758
Totals	79,987,831	$40,351,070	611,915,898	$224,996,257
Chicle *dutiable*	525,938	$273,289	8,309,226	$4,154,284
MANUFACTURED—*dutiable*				
Rubber belting	72,385	$54,159	515,797	$387,250
Other rubber manufactures of substitutes for rubber	.....	172,918	.....	862,006
Totals	72,385	$227,077	515,797	$1,249,256

Exports of Foreign Merchandise

UNMANUFACTURED				
Crude rubber	2,533,059	$1,623,258	21,113,884	$10,513,913
Balata	28,924	17,510	414,051	272,106
Jelutong or Pontiana's	.....	.....	.....	.....
Gutta percha and rubber substitutes and scrap	41	118	92,192	5,024
Totals	2,562,024	$1,640,886	21,620,127	$10,791,043
Chicle	11,872	$4,038	133,527	$62,968
MANUFACTURED				
Gutta percha and India rubber	2	$5	120,487	$94,637
Totals	2	$5	120,487	$94,637

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	1,136,492	$118,194	6,616,154	$654,814
Scrap and old	2,332,876	157,105	22,600,885	1,035,217
Footwear				
Boots *pairs*	100,511	206,978	533,881	1,233,925
Shoes *pairs*	162,293	132,723	641,849	570,964
Canvas shoes with rubber soles *pairs*	383,277	277,411	3,184,436	2,253,419
Rubber water bottles and fountain syringes *number*	29,860	23,657	187,347	130,679
Other druggists' rubber sundries	118,370	126,329	623,778	676,292
Bathing caps *dozen*	14,071	28,060	167,806	284,781
Hard rubber goods				
Electrical hard rubber goods	106,937	19,254	675,753	191,517
Other hard rubber goods	33,610	51,426	433,085	411,298
Tires				
Pneumatic casings				
For automobiles *number*	167,879	$2,197,972	1,105,014	$13,223,118
Others *number*	3,532	15,897	37,245	140,151
Pneumatic tubes				
For automobiles *number*	144,289	279,344	984,647	1,746,083
Others *number*	1,936	1,848	30,074	29,023
Solid tires				
For automobiles and motor trucks *number*	9,751	257,922	72,811	1,885,473
Others *number*	188,378	37,418	885,576	190,931
Tire accessories	218,574	95,402	1,548,454	657,709
Belting	425,372	257,091	2,874,081	1,638,058
Hose	430,110	171,710	3,633,880	1,384,393
Packing	202,463	86,816	1,181,701	536,730
Soles and heels	217,160	67,725	2,100,865	641,611
Thread	116,246	148,509	899,504	1,068,971
Other rubber manufactures	375,324	181,967	3,643,478	1,702,845
Totals	.....	$4,940,758	.....	$32,291,002
Rubber toys, balls and balloons	84,250	$101,064	747,096	$895,792

Imports of Crude Rubber Into the United States by Customs Districts

	August, 1924 Pounds	August, 1924 Value	August, 1925 Pounds	August, 1925 Value
Massachusetts	1,323,981	$275,328	1,874,777	$882,800
Buffalo	6,761	1,375	.....	.....
New York	42,648,510	8,411,241	67,928,215	36,252,886
Philadelphia	.....	.....	56,000	29,463
Maryland	3,851,271	722,368	1,215,750	619,288
Los Angeles	21,098	6,426	2,758,022	1,357,674
San Francisco	1,470,210	440,736	21,506	11,882
Oregon	.....	.....	156,800	58,547
Washington	.....	.....	531,812	462,414
Ohio	.....	.....	169,000	87,223
Colorado	38,080	7,811	132,160	72,171
Totals	48,769,911	$9,865,285	74,844,042	$39,834,348

AMERICAN EXPORTS OF RUBBER THREAD DURING THE TWELVE months ended June, 1925, amounted to 1,315,145 pounds, value $1,536,342. Corresponding shipments of this commodity during the year 1924 totaled $1,378,907. The July figure was $133,561, that for August increasing to $148,509.

United States Crude and Waste Rubber Imports for 1925 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Total 1925	Total 1924	Balata	Miscellaneous	Waste
January tons	28,480	989	325	54	112	....	29,960	21,611	22	1,462	206
February	21,740	1,203	120	224	163	6	23,456	31,763	48	908	241
March	31,067	1,906	287	305	346	3	33,914	17,752	25	1,022	186
April	25,403	1,167	332	78	244	7	27,231	42,436	38	987	243
May	34,187	1,834	287	203	364	14	36,889	23,914	30	816	182
June	28,522	990	225	294	299	7	30,337	18,840	33	1,160	143
July	32,147	977	335	117	321	21	33,918	18,469	46	976	371
August	29,921	598	160	456	364	85	31,584	20,076	36	641	388
September	24,777	1,486	122	500	170	16	27,071	29,000	54	506	398
Totals, 9 months, 1925 tons	256,244	11,150	2,193	2,231	2,383	159	274,360	.....	332	8,478	2,358
Totals, 9 months, 1924	211,960	8,147	2,291	489	974	...	.....	223,861	339	5,592	684

Compiled from statistics supplied by the Rubber Association of America, Inc.

United States by Countries During August, 1925 *(Continued)*

	Waterproofed Outer Garments Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Solid Tires: Automobile and Motor Truck Number	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Tire Rubber Accessories, Repair Materials Value	Hard Rubber Goods: Electrical Supplies Value	Hard Rubber Goods: Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
	$15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	247	$2,807	.....	$948	.....	2	$53	.....	.....	.....	.....	.....	$48	.....	.....
	3,125	2,626	33,979	$198	1,607	$58	106	2,998	$179	$2,022	.....	.....	$21	1,228	$1,313	$2,361
	.....	567	6,910	.....	1,071	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	122
	.....	294	5,369	.....	1,183	.....	55	1,758	.....	7	.....	.....	.....	.....	.....	.....
	.....	29	313	.....	376	.....	114	2,520	.....	51	.....	.....	57	33	.....	100
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	13	262	.....	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	36	410	.....	64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	11	462	.....	152	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
	.....	129	1,843	.....	105	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	20	274	9	135	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	50	937	.....	377	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	$3,140	4,022	$53,566	$207	$6,031	$58	277	$7,329	$179	$2,080	.....	.....	$78	$1,309	$1,313	$2,603
	$40,892	167,879	$2,197,972	$15,897	$280,875	$1,848	9,751	$257,922	$37,418	$95,402	$19,254	$51,426	$23,657	$126,329	$28,060	$101,064

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED	August, 1925 Pounds	August, 1925 Value	Eight Months Ended August, 1925 Pounds	Eight Months Ended August, 1925 Value
Crude rubber				
From—				
Straits Settlements	7,163,200	£1,272,030	41,867,600	£4,664,908
Federated Malay States	2,299,500	417,383	16,490,200	1,816,172
British India	707,300	131,245	6,984,800	672,070
Ceylon and Dependencies	3,634,100	644,910	15,431,200	1,838,155
Other Dutch possessions in Indian Seas	1,301,900	238,733	6,400,200	707,043
Dutch East Indies (except other Dutch possessions in Indian Seas)	1,967,200	364,111	11,510,600	1,287,745
Other countries in East Indies and Pacific, not elsewhere specified	224,400	30,930	1,266,400	147,436
Brazil	229,100	33,124	5,254,000	408,598
Peru	.....	.....	15,400	1,650
South and Central America (except Brazil and Peru)	2,800	420	81,900	10,138
West Africa				
French West Africa	6,600	770	1,117,500	62,349
Gold Coast	9,700	995	68,100	5,920
Other parts of West Africa	94,700	15,312	716,000	59,500
East Africa, including Madagascar	133,400	22,911	492,500	54,633
Other countries	128,200	22,833	846,100	111,407
Totals	17,902,100	£3,195,707	108,542,500	£11,847,724
Waste and reclaimed rubber	430,500	10,857	4,225,500	54,221
Gutta percha and balata	609,500	88,639	7,099,600	947,802
Rubber substitutes	21,500	522	144,200	5,935
Totals	18,963,600	£3,295,725	120,011,800	£12,855,682
MANUFACTURED				
Boots and shoes....*doz. pairs*	30,727	£95,504	237,553	£549,941
Tires and tubes				
Pneumatic				
Outer covers	.....	251,200	.....	2,036,780
Inner tubes	.....	43,875	.....	281,298
Solid tires	.....	41,672	.....	235,123
Other rubber manufactures	.....	140,017	.....	1,110,775
Totals	.....	£572,268	.....	£4,213,917

Exports

UNMANUFACTURED				
Waste and reclaimed	2,480,800	£28,754	11,395,700	£132,691
Rubber substitutes	120,700	2,724	850,400	19,554
Totals	2,601,500	£31,478	12,246,100	£152,245
MANUFACTURED				
Boots and shoes....*doz. pairs*	24,657	£38,641	201,443	£314,792
Tires and tubes				
Pneumatic				
Outer covers	.....	228,497	.....	1,931,618
Inner tubes	.....	53,307	.....	407,314
Solid Tires	.....	28,988	.....	262,037
Other rubber manufactures	.....	224,185	.....	2,077,231
Totals	.....	£573,618	.....	£4,992,992

Exports—Colonial and Foreign

UNMANUFACTURED	August, 1925 Pounds	August, 1925 Value	Eight Months Ended August, 1925 Pounds	Eight Months Ended August, 1925 Value
Crude Rubber				
To—				
Russia	190,500	£38,100	11,441,600	£955,642
Sweden, Norway and Denmark	172,000	27,099	1,444,900	133,182
Germany	1,929,800	352,124	15,487,900	1,449,559
Belgium	385,800	62,157	3,697,000	356,894
France	2,240,100	438,068	23,984,400	2,481,723
Spain	50,700	7,165	525,900	49,423
Italy	670,100	135,473	7,134,900	669,683
Austria	100	17	116,300	9,982
Hungary	1,600	243	9,200	828
Other European countries	113,000	19,425	1,622,500	136,997
United States	3,340,600	521,313	63,001,700	5,888,387
Canada	174,900	28,310	4,332,800	402,391
Other countries	63,900	8,319	682,900	60,699
Totals	9,333,100	£1,637,813	133,482,000	£12,595,390
Waste and reclaimed rubber	7,500	128	224,600	5,740
Gutta percha and balata	37,400	3,568	554,000	45,121
Rubber substitutes	.....	.....	55,200	2,659
Totals	9,378,000	£1,641,509	134,315,800	£12,648,910
MANUFACTURED				
Boots and shoes ....*doz. pairs*	374	£1,117	3,483	£9,304
Tires and tubes				
Pneumatic				
Outer covers	.....	65,895	.....	260,878
Inner tubes	.....	9,056	.....	34,002
Solid tires	.....	2,606	.....	11,060
Other rubber manufactures	.....	10,958	.....	108,152
Totals	.....	£89,632	.....	£423,396

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of August, 1925

	Landed for August Tons	Delivered for August Tons	Stocks, August 31: 1925 Tons	1924 Tons	1923 Tons
LONDON:					
Plantation	5,154	4,760	4,452	49,511	48,068
Other grades	5	18	8	109	77
LIVERPOOL:					
Plantation	†98	†137	†231	†4,006	†5,523
Para and Peruvian	164	119	238	384	75
Other grades	....	....	19	208	218
Total tons, London and Liverpool	5,421	5,034	4,948	54,218	53,961

†Official returns from the six recognized public warehouses.

DURING THE TWELVE MONTHS ENDED JUNE 30, 1925, THE UNITED States imported 691,757 pounds of rubber belting, value $490,811, and exported such goods to the amount of 3,699,851 pounds, value $2,113,041. July and August export values were $179,135 and $257,091 respectively.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
SEPTEMBER 21. By "Thespis," South America.					
H. A. Astlett & Co.	337	19	38	2	...
Paul Bertuch & Co.	336	...	90	135	...
General Rubber Co.	723	29	117	100	*91
L. Littlejohn & Co., Inc.	498	...	...	...	...
Meyer & Brown, Inc.	119	...	30	201	...
Poel & Kelly, Inc.	446	17	65	130	...
SEPTEMBER 25. By "Hesperides," Montevideo.					
Paul Bertuch & Co.	†52	...	...	...	...
OCTOBER 5. By "Alban," South America.					
H. A. Astlett & Co.	265	...	145	24	...
Paul Bertuch & Co.	‡266	...	...	...	...
Paul Bertuch & Co.	424	...	...	...	...
General Rubber Co.	383	11	67	147	††79
L. Littlejohn & Co., Inc.	759	...	92	71	...
Meyer & Brown, Inc.	272	...	19	207	...
Poel & Kelly, Inc.	654	11	164	79	...
OCTOBER 12. By "American Legion," Montevideo.					
Paul Bertuch & Co.	‡255	...	...	...	...

*Includes 4 cases mixed rubber. †Packages. ‡Biscuits. ††Includes 6 cases mixed rubber.

Plantations

	Cases
SEPTEMBER 17. By "City of Dunedin," Far East.	
General Rubber Co.	22
L. Littlejohn & Co., Inc.	54
SEPTEMBER 17. By "Cleveland," Hamburg.	
Haldane, Bierrie & Co., Inc.	98
SEPTEMBER 18. By "Fort Victor," Far East.	
Poel & Kelly, Inc.	112
SEPTEMBER 19. By "Veendam," Far East.	
Fisk Rubber Co.	457
L. Littlejohn & Co., Inc.	103
Poel & Kelly, Inc.	37
SEPTEMBER 20. By "Maihar," Far East.	
General Rubber Co.	1,665
Poel & Kelly, Inc.	136
Chas. T. Wilson Co., Inc.	98
SEPTEMBER 22. By "Birchbank," Far East.	
H. A. Astlett & Co.	267
Paul Bertuch & Co. pkgs.	250
General Rubber Co.	1,631
L. Littlejohn & Co., Inc.	1,213
Meyer & Brown, Inc.	2,264
H. Muehlstein & Co., Inc.	50
Poel & Kelly, Inc.	443
Chas. T. Wilson Co., Inc.	1,030
SEPTEMBER 23. By "Keifuku Maru," Germany.	
General Rubber Co.	56
L. Littlejohn & Co., Inc.	71
SEPTEMBER 24. By "Pres. Monroe," Far East.	
H. A. Astlett & Co.	445
Baird Rubber & Trading Co., Inc.	*200
Baird Rubber & Trading Co., Inc.	996
Paul Bertuch & Co. pkgs.	650
Fisk Rubber Co.	1,025
General Rubber Co.	948
L. Littlejohn & Co., Inc.	885
Meyer & Brown, Inc.	580
H. Muehlstein & Co., Inc.	530
Chas. T. Wilson Co., Inc.	640
SEPTEMBER 25. By "Volendam," Rotterdam.	
L. Littlejohn & Co., Inc.	331
Meyer & Brown, Inc.	134
SEPTEMBER 25. By "West Faralon," Far East.	
H. A. Astlett & Co., Inc.	†100
Poel & Kelly, Inc.	†250
SEPTEMBER 28. By "Caronia," London.	
Baird Rubber & Trading Co., Inc.	411
General Rubber Co.	564
Haldane, Bierrie & Co., Inc.	371
L. Littlejohn & Co., Inc.	7,262
Meyer & Brown, Inc.	369
Poel & Kelly, Inc.	3,374
SEPTEMBER 28. By "Samarinda," Far East.	
H. A. Astlett & Co.	584
Baird Rubber & Trading Co., Inc.	226
General Rubber Co.	3,566
Haldane, Bierrie & Co., Inc.	81
L. Littlejohn & Co., Inc.	2,257
Meyer & Brown, Inc.	2,619
H. Muehlstein & Co., Inc.	173
Poel & Kelly, Inc.	1,039
Chas. T. Wilson Co., Inc.	174
SEPTEMBER 29. By "Majestic," London.	
H. A. Astlett & Co.	518
L. Littlejohn & Co., Inc.	961
SEPTEMBER 29. By "American Trader," London.	
General Rubber Co.	671
L. Littlejohn & Co., Inc.	267
SEPTEMBER 29. By "Capetown Maru," Hamburg.	
L. Littlejohn & Co., Inc.	319
Meyer & Brown, Inc.	‡146
SEPTEMBER 30. By "France," Havre.	
Haldane, Bierrie & Co., Inc.	80
H. Muehlstein & Co., Inc.	80
SEPTEMBER 30. By "Westphalia," Hamburg.	
H. A. Astlett & Co., Inc.	75
L. Littlejohn & Co., Inc.	75
Poel & Kelly, Inc.	597
SEPTEMBER 30. By "Lapland," Hamburg.	
Haldane, Bierrie & Co., Inc.	35
OCTOBER 3. By "Bellerophon," Far East.	
H. A. Astlett & Co., Inc.	76
Baird Rubber & Trading Co., Inc.	††*177
Baird Rubber & Trading Co., Inc.	961
General Rubber Co.	8,056
L. Littlejohn & Co., Inc.	4,890
Meyer & Brown, Inc.	2,891
H. Muehlstein & Co., Inc.	250
Poel & Kelly, Inc.	815
Chas. T. Wilson Co., Inc.	1,127
OCTOBER 5. By "City of Corinth," Far East.	
H. A. Astlett & Co.	1,080
Baird Rubber & Trading Co., Inc.	350
Fisk Rubber Co.	2,460
General Rubber Co.	2,014
Haldane, Bierrie & Co., Inc.	234
L. Littlejohn & Co., Inc.	3,464
Meyer & Brown, Inc.	2,780
H. Muehlstein & Co., Inc.	435
Poel & Kelly, Inc.	*1,804
Poel & Kelly, Inc.	800
Chas. T. Wilson Co., Inc.	785
OCTOBER 5. By "Nieuw Amsterdam," Rotterdam.	
General Rubber Co.	1,006
Haldane, Bierrie & Co., Inc.	75
Poel & Kelly, Inc.	43
OCTOBER 5. By "Steel Traveler," Far East.	
H. A. Astlett & Co.	358
Baird Rubber & Trading Co., Inc.	50
General Rubber Co.	3,494
Haldane, Bierrie & Co., Inc.	40
L. Littlejohn & Co., Inc.	1,436
Meyer & Brown, Inc.	800
H. Muehlstein & Co., Inc.	150
Poel & Kelly, Inc.	503
Chas. T. Wilson Co., Inc.	393
OCTOBER 5. By "Albert Ballin," Hamburg.	
H. A. Astlett & Co.	139
General Rubber Co.	48
Haldane, Bierrie & Co., Inc.	64
L. Littlejohn & Co., Inc.	1,297
OCTOBER 5. By "Minnewaska," London.	
L. Littlejohn & Co., Inc.	52
Meyer & Brown, Inc.	270
Poel & Kelly, Inc.	2,203
Chas. T. Wilson Co., Inc.	107
OCTOBER 7. By "Antilochus," Far East.	
H. A. Astlett & Co.	893
Baird Rubber & Trading Co., Inc.	*100
Baird Rubber & Trading Co., Inc.	1,438
Fisk Rubber Co.	2,740
General Rubber Co.	5,007
L. Littlejohn & Co., Inc.	5,243
Meyer & Brown, Inc.	1,749
H. Muehlstein & Co., Inc.	*465
H. Muehlstein & Co., Inc.	360
Poel & Kelly, Inc.	2,613
Chas. T. Wilson Co., Inc.	325
OCTOBER 8. By "Pres. Harrison." Far East.	
H. A. Astlett & Co.	130
Baird Rubber & Trading Co., Inc.	650
Fisk Rubber Co.	76
General Rubber Co.	330
Hood Rubber Co.	*2,295
L. Littlejohn & Co., Inc.	2,909
Meyer & Brown, Inc.	1,276
H. Muehlstein & Co., Inc.	*680
H. Muehlstein & Co., Inc.	150
Poel & Kelly, Inc.	150
Chas. T. Wilson Co., Inc.	380
OCTOBER 8. By "Chicago," Havre.	
H. Muehlstein & Co., Inc.	480
OCTOBER 10. By "Ryndam," Rotterdam.	
Baird Rubber & Trading Co., Inc.	100
General Rubber Co.	137
Haldane, Bierrie & Co., Inc.	135
L. Littlejohn & Co., Inc.	185
H. Muehlstein & Co., Inc.	50
OCTOBER 10. By "Verbania," London.	
Meyer & Brown, Inc.	100
OCTOBER 11. By "Archer," Far East.	
H. A. Astlett & Co.	132
Baird Rubber & Trading Co., Inc.	362
General Rubber Co.	3,036
Hood Rubber Co.	250
L. Littlejohn & Co., Inc.	1,388
Meyer & Brown, Inc.	1,564
Chas. T. Wilson Co., Inc.	600
OCTOBER 12. By "Minnekahda," London.	
General Rubber Co.	20
L. Littlejohn & Co., Inc.	5,361
Meyer & Brown, Inc.	2,850
OCTOBER 12. By "Cedric," London.	
General Rubber Co.	112
L. Littlejohn & Co., Inc.	330
OCTOBER 14. By "Thuringia," Hamburg.	
Baird Rubber & Trading Co., Inc.	455
Haldane, Bierrie & Co., Inc.	100
L. Littlejohn & Co., Inc.	650
OCTOBER 14. By "Resolute," Holland.	
L. Littlejohn & Co., Inc.	50
OCTOBER 16. By "Rotterdam," Rotterdam.	
General Rubber Co.	698
OCTOBER 16. By "Memnon," Far East.	
H. A. Astlett & Co.	453
Baird Rubber & Trading Co., Inc.	††*22
Baird Rubber & Trading Co., Inc.	†††50
General Rubber Co.	2,083
Haldane, Bierrie & Co., Inc.	50
OCTOBER 17. By "Yoseric," Far East.	
General Rubber Co.	1,958
OCTOBER 18. By "City of Lahore," Far East.	
General Rubber Co.	92

*Arrived at Boston.
†Arrived at Los Angeles.
‡Ficus block.
††Contains 5 tons Penang scrap.
†††Contains 10 tons Penang scrap.

Africans

	Cases
SEPTEMBER 16. By "William Penn," Far East.	
Hood Rubber Co.	62
SEPTEMBER 17. By "Wales Maru," Far East.	
Hood Rubber Co.	24
SEPTEMBER 24. By "Roussillon," Bordeaux.	
Poel & Kelly, Inc.	209
SEPTEMBER 26. By "Francisco," Belgium.	
L. Littlejohn & Co., Inc.	1
SEPTEMBER 28. By "Samarinda," Far East.	
Hood Rubber Co.	*218
OCTOBER 3. By "Bellerophon," Far East.	
Poel & Kelly, Inc.	55
OCTOBER 3. By "Independent Hall," France.	
L. Littlejohn & Co., Inc.	110
OCTOBER 5. By "City of Corinth," Far East.	
Hood Rubber Co.	*319
OCTOBER 5. By "Albert Ballin," Far East.	
Hood Rubber Co.	6
OCTOBER 6. By "Corinthia," Liverpool.	
Poel & Kelly, Inc.	3
OCTOBER 8. By "Chicago," Bordeaux.	
L. Littlejohn & Co., Inc.	392
Meyer & Brown, Inc.	207
OCTOBER 9. By "Yone Maru," Hamburg.	
Poel & Kelly, Inc.	65

Balata

	Cases
SEPTEMBER 17. By "Prins der Nederlanden," Surinam.	
Middleton & Co., Ltd. bales	80
SEPTEMBER 21. By "Haiti," Surinam.	
Middleton & Co., Ltd. bales	34
SEPTEMBER 21. By "Thespis," Brazil.	
General Rubber Co.	60
OCTOBER 6. By "Alban," Manoas.	
Paul Bertuch & Co.	46

Centrals

	Cases
SEPTEMBER 22. By "Santa Cruz," Central America.	
L. Littlejohn & Co., Inc.	224

Guayule

	Cases
SEPTEMBER 21. By "Monterey," Mexico.	
Continental Rubber Co. of New York....	500
OCTOBER 5. By "Agwistar," Mexico.	
Continental Rubber Co. of New York.....	3,300
OCTOBER 10. By "Carito," Mexico.	
Continental Rubber Co. of New York.....	2,180

Manicobas

	Bales
SEPTEMBER 3. By "Camamus," Bahia.	
Adolph Hirsch & Co., Inc.....	35
SEPTEMBER 30. By "Balzac," Bahia.	
Adolph Hirsch & Co., Inc.....	170
OCTOBER 3. By "Castilian Prince," Bahia.	
Adolph Hirsch & Co., Inc.....	35

Rubber Latex

	Gallons
OCTOBER 4. By "Steel Traveler," Far East.	
General Rubber Co.....	76,238
OCTOBER 4. By "Archer," Far East.	
General Rubber Co.....	69,690

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

	July, 1925		Four Months Ended July, 1925	
UNMANUFACTURED	Pounds	Value	Pounds	Value
Rubber, gutta percha, etc.,				
From United Kingdom	209,169	$128,309	1,130,463	$492,472
United States	3,087,693	2,131,167	10,278,181	5,679,601
Straits Settlements	159,936	81,257	2,179,487	939,696
Dutch East Indies	156,628	65,413	296,373	119,568
Other countries	.....	.....	56,000	20,097
Totals	3,613,426	$2,406,146	13,940,504	$7,251,434
Rubber, recovered	688,983	$62,316	2,120,278	$238,249
Rubber, powdered and rubber or gutta percha scrap.....	455,293	30,256	1,768,726	94,307
Balata	.....	.....	1,094	848
Rubber substitutes	72,630	17,084	229,784	29,594
Totals	1,216,906	$109,656	4,119,882	$362,998
PARTLY MANUFACTURED				
Hard rubber sheets and rods.	20,296	$14,048	113,688	$62,331
Hard rubber tubes	.....	140	.....	260
Rubber thread not covered....	13,804	15,083	55,186	58,564
Totals	34,100	$29,271	168,874	$121,155
MANUFACTURED				
Belting	.....	$23,281	.....	$72,528
Hose	.....	14,372	.....	75,325
Packing	.....	3,797	.....	15,230
Boots and shoes.....*pairs*	4,222	7,755	9,439	19,140
Clothing, including waterproofed	.....	16,438	.....	65,578
Gloves	.....	1,040	.....	4,696
Hot water bottles	.....	434	.....	853
Tires, solid.....*number*	88	3,447	2,091	12,106
Tires, pneumatic.....*number*	3,882	60,674	11,971	165,633
Inner tubes.....*number*	2,511	5,566	7,473	15,913
Elastic, round or flat.....	.....	18,982	.....	78,147
Mats and matting.....	.....	1,156	.....	6,279
Cement	.....	6,904	.....	15,760
Golf balls .....*dozen*	3,809	16,627	19,225	80,311
Heels, rubber .....*pairs*	4,871	316	19,976	1,548
Other rubber manufactures...	.....	117,912	.....	516,457
Totals	.....	$298,701	.....	$1,145,504
Totals, rubber imports	.....	$2,843,774	.....	$8,881,091

Exports of Domestic and Foreign Rubber Goods

	July, 1925		Four Months Ended July, 1925	
	Produce of Canada Value	Re-exports of Foreign Goods Value	Produce of Canada Value	Re-exports of Foreign Goods Value
UNMANUFACTURED				
Crude and waste rubber.....	$46,220	.....	$94,374	.....
Total	$46,220	.....	$94,374	.....
MANUFACTURED				
Belting	$36,570	.....	$140,003	.....
Canvas shoes with rubber soles	262,268	.....	727,268	.....
Boots and shoes.....	170,093	.....	452,745	.....
Clothing, including waterproofed	4,745	.....	17,056	.....
Hose	10,731	.....	60,521	.....
Tires, casings	669,623	.....	2,798,120	.....
Inner tubes	125,341	.....	508,688	.....
Solid	11,948	.....	66,247	.....
Other rubber manufactures...	27,062	$18,662	127,183	$40,128
Totals $1,318,381		$18,662	$4,897,831	$40,128
Totals, rubber exports..$1,364,601		$18,662	$4,992,205	$40,128

AN INVESTIGATION COMMITTEE ON RUBBER FLOORING HAS BEEN established in Holland, the members of the committee being representative of technical-scientific organizations. Architects or rubber manufacturers who can supply particulars regarding some of the difficulties met with in the laying of rubber flooring are requested to communicate with the committee's secretary, J. G. Fol, 39 Noordeinde, The Hague, Holland.

Plantation Rubber Exports from Dutch East Indies

Java and Madura

	June		Six Months Ended June	
	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
To—				
Holland	166,000	187,000	1,479,000	900,000
Holland for order.....	65,000	141,000	643,000	1,116,000
Great Britain	658,000	814,000	3,528,000	3,484,000
Great Britain for order....	14,000	24,000	54,000	245,000
Germany and order.....	37,000	162,000	213,000	636,000
France and order.....	28,000	107,000	156,000	257,000
Belgium and order.....	.....	16,000	9,000	108,000
Italy and order.....	27,000	43,000	161,000	307,000
Sweden	.....	.....	.....	3,000
Canada	.....	.....	.....	2,000
United States	1,530,000	2,476,000	12,290,000	15,174,000
South America	.....	36,000	.....	97,000
Singapore	366,000	113,000	1,443,000	824,000
Hongkong	.....	.....	27,000	3,000
Japan	63,000	.....	597,000	65,000
Australia	3,000	134,000	214,000	206,000
Totals	2,957,000	4,253,000	20,814,000	23,427,000
Ports of Origin.				
Tandjong-Priok	1,135,000	1,830,000	7,665,000	8,980,000
Tjerebon	27,000	.....	46,000	25,000
Samarang	213,000	317,000	1,407,000	1,754,000
Sourabaya	1,110,000	1,577,000	8,652,000	9,087,000
Pasuruan	102,000	62,000	681,000	613,000
Probolingge	51,000	82,000	589,000	533,000
Panarukan	72,000	154,000	681,000	1,145,000
Banjuwangi	145,000	82,000	456,000	555,000
Tjilatjap	102,000	157,000	637,000	728,000

Belawan

	June		Six Months Ended June	
	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
To—				
Holland	122,000	180,000	906,000	1,003,000
Great Britain	352,000	598,000	2,050,000	3,949,000
Germany	77,000	45,000	238,000	245,000
France	44,000	28,000	102,000	102,000
Italy	71,000	65,000	131,000	250,000
Belgium	.....	.....	5,000	9,000
Austria	30,000	.....	73,000	.....
Denmark	.....	.....	.....	.....
United States	2,129,000	1,299,000	13,614,000	9,470,000
British South Africa.....	.....	.....	7,000	14,000
Singapore	92,000	85,000	487,000	516,000
Penang	72,000	147,000	426,000	943,000
Hongkong	.....	10,000	30,000	10,000
Australia	.....	5,000	6,000	26,000
Other countries	.....	.....	1,000	1,000
Totals	2,989,000	2,462,000	18,076,000	16,538,000

AMERICAN TIRE EXPORTS TO AUSTRALIA INCREASE

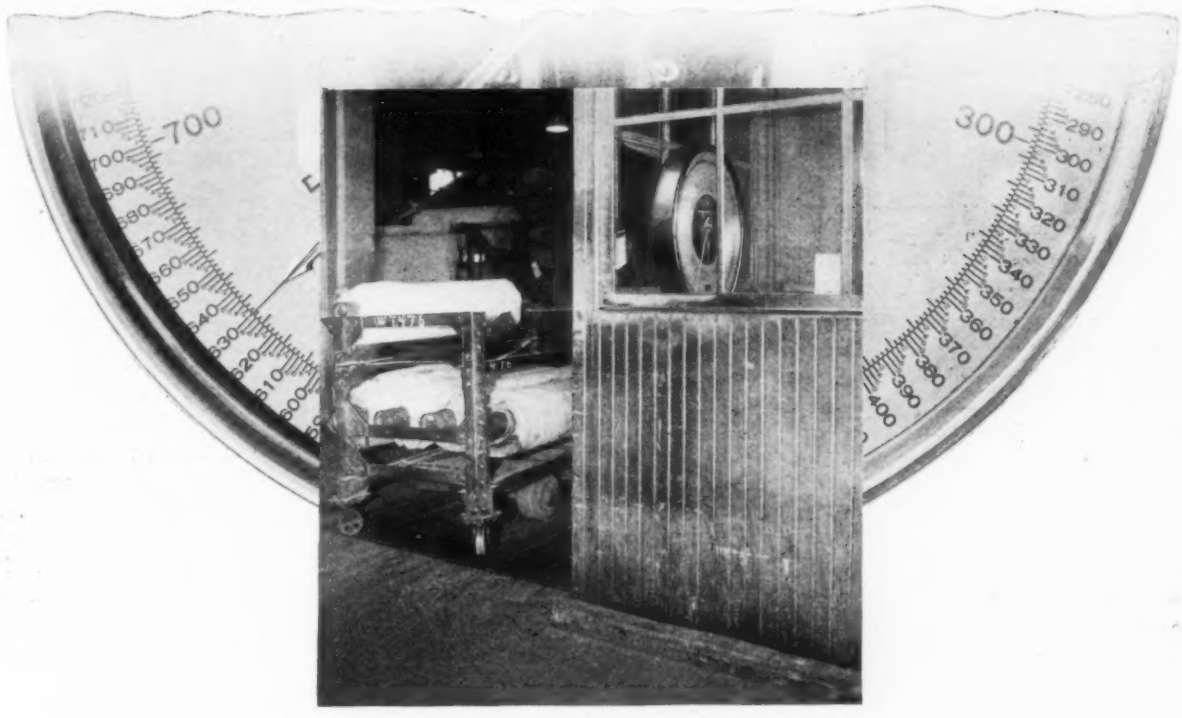
Australia has continued in recent years to import large numbers of American tires, the total figures for 1922 for tires and tubes being $842,500; for 1923, $1,150,357; and for 1924, $1,306,590. For the first six months only of 1925 the value has already risen to $961,380, the figures in detail being $664,997 for pneumatic casings; $77,206 for inner tubes; and $219,177 for solid tires. The July values were: pneumatic casings, $71,964; inner tubes, $7,925; and solid tires, $51,158. The latter figure was the highest of the month for this class of goods. August figures for casings and inner tubes represented a continued advance.

DURING JULY THE PHILIPPINES PURCHASED FROM AMERICAN manufacturers 72,853 pairs of canvas rubber-soled shoes, value $55,281; Mexico also taking 68,062 pairs, value $51,036; Argentina 92,800 pairs, value $48,500; Cuba 65,268 pairs, value $36,275; and Colombia 30,393 pairs, value $20,109. In each instance the July purchase was somewhat larger than that of August.

INDIA RUBBER WORLD
CAOUTCHOUC FOUNDED 1889 GUTTA-PERCHA
Reg. U.S. Pat. Off. Reg. United Kingdom.

Vol. 73 NOVEMBER 1, 1925 No. 2

TABLE OF CONTENTS



Automatic Measurement--
The Source of Greater Profits in Industry

THE saving of materials by automatic measurement is today's outstanding source of greater profit in industry.

Of the three principal cost elements—labor, expense, and materials—labor and expense are controlled by time clocks, time studies, periodic comparative statements, and statistical reports prepared by accounting departments and auditors.

But there still remain concealed costly shortages which are customarily charged off in the annual inventory adjustment. And this mysterious difference between profits expected and profits realized is frequently due to errors in the measurement of materials.

It is with a full understanding of the importance of the measurement of materials, that Toledo Scales are designed, made, and sold.

They are adaptable to any measurement problem; are simply designed and ruggedly built, and afford automatic protection against human and mechanical error—the operator merely puts on the load and reads the exact weight or count on a great dial from 5 to 7 feet in circumference.

To insure continuously accurate operation, service stations are maintained in 106 cities in North America.

To modernize YOUR measurement operations the first step is an investigation by Toledo Scale engineers. This costs you nothing; it may save you much.

Toledo Scales are used for automatic weighing, computing, counting, mailing, checking, packing, shipping and special purposes in stores, offices, shipping rooms, factories, mills and warehouses. Scales to weigh everything from an ounce of spice to thirty tons of steel.

Toledo Scale Company, Toledo, Ohio
Canadian Toledo Scale Co., Limited, Windsor, Ont.
Manufacturers of Automatic Scales for Every Purpose
Service Stations in 106 Cities in the United States and Canada

TOLEDO SCALES

NO SPRINGS HONEST WEIGHT

Our Publicity Page

Honesty in Advertising

IN recent years an ever-increasing acceptance has been accorded the policy of honesty in advertising. It was the keynote of the addresses made by men of national note at the recent sixth annual convention of the New England District, Associated Advertising Clubs of the World at Springfield, Massachusetts, as it has been elsewhere at similar district and national gatherings throughout the country. Such declarations, reflecting the sound practice of representative men of affairs of the nation, constitute one of the most hopeful signs of the times in American business.

Advertising Yesterday and Today

Since the days of Barnum's harmless shams, and perhaps from a much earlier time, there has been a tendency to exaggerate and over-estimate in advertising. Some unscrupulous advertisers have even gone so far as to mislead and misrepresent in their copy to such an extent as to cheat, defraud and cause serious loss and harm, practices which the peerless showman would never have stooped to. Nor is such advertising altogether a thing of the past, although fortunately it has become rare.

In the early days of advertising as a sales force most publishers felt much less responsibility than at present regarding what they printed. They had space to sell, and having sold it assumed that the advertiser had a right to use almost any sort of copy he chose, and unless it was ridiculously extravagant or obviously a fraud it received scant attention.

Influences that Have Raised Standards

For some years past American business has been conducted on a higher average ethical plane than formerly, and this has effected a considerable raising in advertising standards. Many influences have contributed toward this tendency. In the early days of advertising, advertisers prepared their own copy. Sometimes it was good, sometimes not, but often much too prejudiced. Then came the advertising agent and the professional copy writer, and soon a noticeable improvement in copy occurred, not only in form and wording but in directness and honesty. To this tendency in recent years has been added the tremendous influence of the Associated Advertising Clubs of the World, also the Better Business Bureaus which are exposing unscrupulous advertisers.

What Advertisers Accomplished Themselves

The Associated Advertising Clubs not only influenced misguided advertisers in the right direction, but did much to make careless publishers feel a high degree of responsibility to the reading public for the character of the advertising printed. The tendency toward volume production and national distribution was another forceful influence. Such an enterprise depends on the confidence of the people, which can be built only on honesty as to quality of the goods and square dealing in merchandising, including truthful advertising.

But advertising, however truthful and effective, loses much of its force when side by side with questionable advertising. And so manufacturers and merchants throughout the country began to scrutinize carefully all the advertising in the publications they used and to complain to the publishers and to withdraw when questionable copy was found. The result has been that representative publishers now scrutinize copy constantly and never knowingly print anything questionable.

The I.R.W. a Pioneer in This Movement

Although *The India Rubber World* dates back to the days when advertising was not the carefully prepared product it is today, from the first to the current issue our advertising pages have been watched as carefully as our reading pages in order to fulfil our obligation to readers to see that they were not in any way misled. And in the thirty-six years of publication the remarkably small number of advertisements that have had to be refused offers a glowing testimonial to the high character of the rubber and allied trades.